

*Middle Bald Mountain Area Communication Site
Biological Evaluation¹*

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¹ Meets the standards for both a Biological Evaluation (FSM 2672.42) and Biological Assessment (50 CFR 402.12(f)).

INTRODUCTION

The purpose of this biological evaluation report (BE) is to present the analysis and determination of effects of the alternatives for the Middle Bald Mountain Area Communication Site Project (Project) on federally listed threatened and endangered species and Forest Service sensitive species (FSM 2670.31-2670.32). Forest Service policy requires that a review of programs and activities, through an effects analysis document (referred to in current Forest Service policy as a BE), be conducted to determine their potential effect on threatened and endangered species, species proposed for listing, and Regional Forester-designated sensitive species (FSM 2670.3) according to direction in the 1997 Land and Resource Management Plan for the Arapaho and Roosevelt National Forests and Pawnee National Grassland (Forest Plan). Preparation of a BE as part of the NEPA process ensures that threatened, endangered, and proposed (TEP) species receive full consideration in the decision-making process. The FS Region 2 Manual Supplement 2600-2013-1 (effective August 24, 2013) provides additional direction for conducting the analysis required in this BE.

DESCRIPTION OF THE PROPOSAL

Larimer County proposes to construct a public safety communication facility at the summit of Middle Bald Mountain in order to provide more efficient radio service to the area (**Figure 1**). The tower would greatly improve service for the Colorado Department of Transportation (CDOT), local fire and police departments, volunteers, Larimer County and other government entities. Middle Bald Mountain is located approximately 40 miles northwest of Fort Collins and approximately 5 miles southwest of Red Feather Lakes in Larimer County, Colorado.

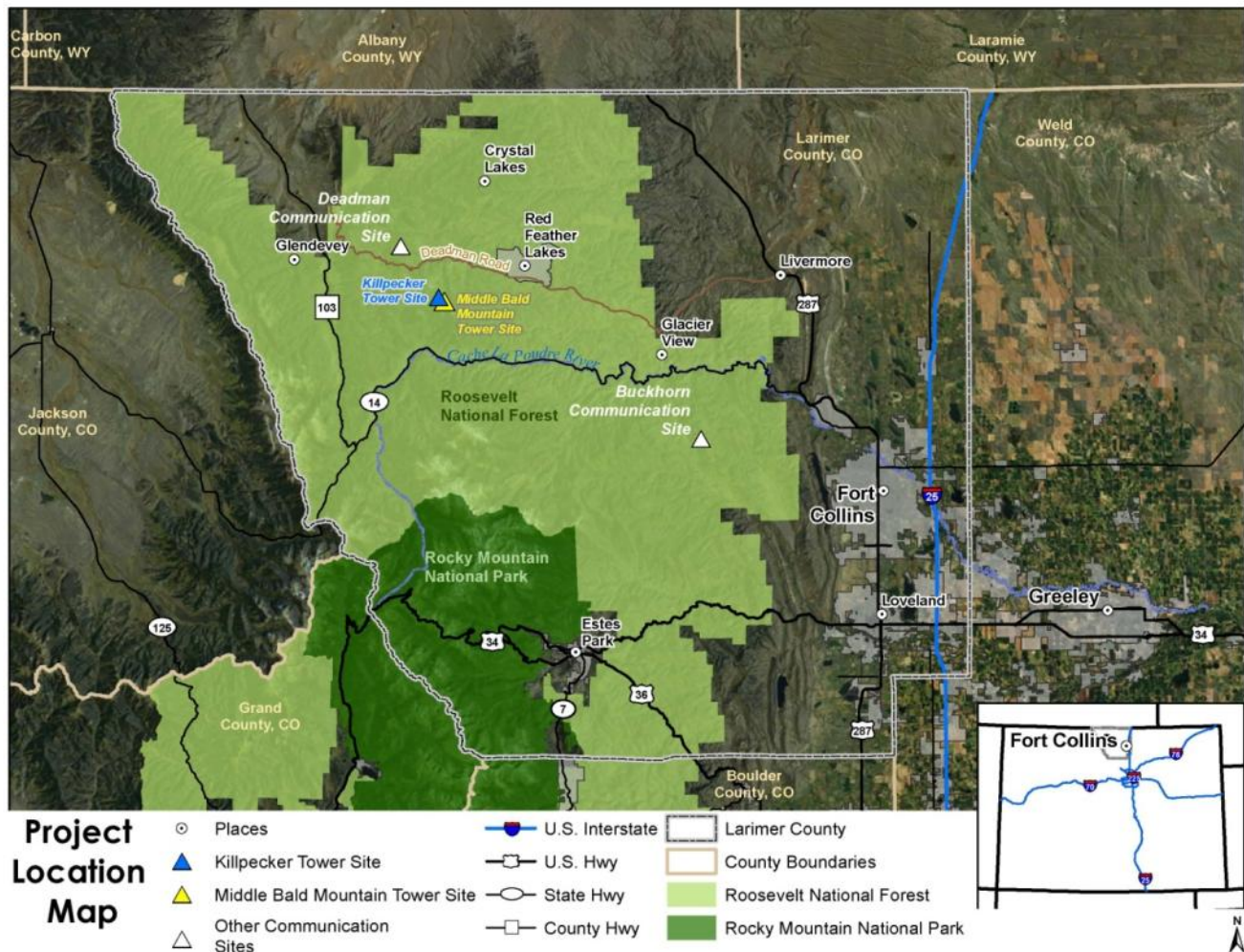
The purpose of and need for this action is to provide expanded and more-reliable, all-weather emergency communications capabilities in north central Larimer County, including additional reaches of the Poudre Canyon. VHF radio coverage is presently poor or nonexistent in the mountainous northwest part of the County, including the Poudre Canyon (Colorado Highway 14), Red Feather Lakes, Crystal Lakes subdivision, Glacier View Meadows subdivision, and areas in the Roosevelt National Forest (Pericle 2009). The need for this action is to improve public safety communication capability, add capacity for an 800 MHz frequency, and reliability so fire and medical first-responders, law enforcement, other government public safety and public service agencies (i.e., volunteer fire departments, Larimer County Search and Rescue, the Forest Service, and other government entities) can provide quicker and better assistance to area residents and recreational visitors during both emergency and routine incidents in those areas.

ALTERNATIVES CONSIDERED IN DETAIL

Alternative 1: No Action Alternative

Under the No Action alternative, the Forest Service would not authorize Larimer County to construct and operate a communication site for government entity use in the vicinity of Middle Bald Mountain. Larimer County would continue to use the Deadman communication site, and the communication improvement objectives of the County and other government participants in the Project would not be achieved. Inadequate VHF and 800 MHz radio communication coverage would continue for emergency service providers and other public safety agencies in north central Larimer County and the Poudre Canyon

Figure 1 Project Location



Alternative 2: Proposed Action: Government-Only Communication Site at Middle Bald Mountain Summit

Site Location

Under the Proposed Action the Forest Service would issue an authorization to Larimer County for the construction and operation of a radio communications facility at the summit of Middle Bald Mountain for government use only (Federal, state, county, municipal). The proposed Middle Bald Mountain communication site would be located at an elevation of approximately 10,980 feet. The tower and building would hold equipment for use by Larimer County, the State of Colorado, the Fort Collins Water Department, volunteer fire departments, search and rescue organizations, and the Forest Service. Larimer County would be the lease holder and site manager. Larimer County, the State of Colorado, and the Fort Collins Water Department would remove their equipment from the Deadman site if the Middle Bald Mountain site were authorized. The Forest Service would co-locate at the Middle Bald site, as well. The Proposed Action would meet the purpose of and need for action by improving VHF and adding 800 MHz coverage and reliability in north central Larimer County and the Poudre Canyon for fire and medical first-responders, law enforcement, and other local, State, and Federal emergency and public services users (Pericle 2009). **Figure 2** shows the overall site plan at Middle Bald Mountain.

A connected action tied to an authorization of this communication site is Forest Service authorization to Poudre Valley Rural Electric Association (PVREA) for the construction, operation, and maintenance of an overhead distribution power line to serve the communication site. The ROW width for the power line would be 20 feet (10 feet on each side of the center line). The new power line would connect from PVREA's existing infrastructure near Red Feather Lake, west alongside the Deadman Road (County Road 162) to its junction with the Killpecker Road, then south alongside the Killpecker Road (NFSR 300) to its junction with NFSR 517. The power line would go east along NFSR 517 to the point at which the proposed access road will leave NFSR 517. The overhead power line would continue alongside the access road to the point at the access road stops at the eastern edge of the trees bordering the meadow at the Middle Bald Mountain summit. The power line would then be buried by trenching it in across that meadow to the communication site building near the summit.

The proposed Middle Bald Mountain communication site is located in MA 5.11 (Emphasis general forest and intermingled rangelands). If the Decision is to authorize a designated communication site, the Forest Plan map would be amended to designate the approximately 0.5 acres within the designated communication site boundary the proposed facilities as MA 8.3 (Emphasis Utility Corridors and Electronic Sites).

Tower Location and Design

The proposed tower at Middle Bald would be a self-supporting, three-legged, steel lattice tower approximately 70 feet in height. At the base, the distance between each of the three legs would be 6 feet. The tower would be situated approximately 190 feet from the equipment building on a 20-foot by 20-foot concrete pad. There would be no guy wires.

The tower would include a ladder with an anti-climb guard to prevent unauthorized access. A galvanized finish with a low reflectivity (after weathering) would be used on the tower. The tower would require no lights; per FAA regulations only towers 200 feet or more in height must be lighted (47 U.S.C. §17.21). The concrete footings for each of the three tower legs would be buried to a depth that cannot be determined without a detailed soil and engineering analysis. If the site is authorized, this analysis would be conducted prior to construction. Depending on the depth required, substantial soil and rock disturbance could be necessary.

Equipment on the tower would include a six-foot diameter microwave dish (painted sky blue or grey, color to be selected and/or approved by the Forest Service in the Communication Site Plan), two fiberglass antennae (each 11 feet long) for the 800 MHz radios, one omni-directional fiberglass antenna five feet in length, four dipole masts (each 10 feet long) each with two dipole antennae for the VHF radios, and a tower-top signal amplifier with the approximate dimensions of six 6 x 6 x 12 inches.

Building Location and Design

A rectangular, approximately 192 square-foot (12 feet by 16 feet) single-story modular equipment building approximately 10 feet high would be constructed on a 16-foot by 20-foot concrete building pad approximately 190 feet from the tower. The building would be a transportable shelter designed to be skid-mounted onto a concrete slab or pier foundation. It would be designed and camouflaged to blend in with the terrain to the greatest extent possible. In addition, a separate 10x6-foot concrete slab would be needed about eight feet from the building to support the backup generator, which could also be camouflaged. All building materials, camouflaging, and slab profile, texture, and color would be selected and/or approved by the Forest Service in the Communication Site Plan.

Site Access

An approximately 10-foot wide access road surfaced with native material would extend about 1,600 feet from NFSR 517 to the east edge of the line of trees on the western border of the summit meadow. The access road alignment would not extend east beyond the edge of the trees, so would not cross the open meadow to the building or tower (**Figure 2**). Instead, load-spreading mats would be laid across the meadow during construction of the building and tower to protect vegetation and soils near the summit. Post-construction, the access road from NFSR 517 to the east edge of the trees would be rehabilitated to a minimal width needed for site maintenance, and gates would be installed at both ends.

Larimer County Technical Communications personnel would access the site at least monthly for routine maintenance. During summer months (when Forest Service roads are open to wheeled vehicles) access to the end of the road would be by pick-up truck or sport utility vehicle. Normal access to the site from the end of the road would be on foot. For special maintenance needs (test equipment or site equipment that is not portable by foot) and for generator re-fueling, access across the meadow from the end of the access road would be by turf-tired utility terrain vehicle (UTV). The route for overland travel between the end of the access road and the building or tower would be varied every visit, whether travel is by foot or vehicle. During winter months, the facility would be accessed using an over-the-snow vehicle when sufficient snow depth is present, or on foot. When feasible, deliveries of equipment or fuel would be scheduled when snow is present so that transport of equipment and fuel could be accomplished with an over-the-snow vehicle and trailer.

Power Source and Power Line Route

Unlike VHS systems that are powered only when a microphone is keyed, 800MHz systems must be fully powered all the time. To meet that need and to power the communication facility's radio equipment, interior lights, receptacles, heating, and cooling systems, the Forest Service would authorize an extension of the commercial electrical power grid from Red Feather Lakes to PVREA to construct, operate, and maintain a 7.2 kV power line which would be installed overhead along County Road 162 (Deadman Road), NFSR 300, NFSR 517, and alongside the access road to the edge of the trees bordering the open meadow of the summit. From that point, a backhoe or spider-hoe would be used to trench in the power line across the meadow to the equipment building.

The power line would have a total length of approximately 12.8 miles and would be installed on 29-foot tall wooden monopoles for most of its length. The span between the overhead poles would range from 240 feet to 280 feet, and approximately 260 poles would be installed along the proposed alignment for the power line. The final stretch of power line across the meadow to the equipment building (about 900 feet) would be installed in an 8-inch-wide and 41-inch-deep trench along the alignment shown in **Figure 2**. Larimer County would operate and maintain the underground section of the power line, and authorization for this section of the power line would be included in the communication site lease.

The power and communication feed lines between the tower and the equipment building would run in an approximately 190-foot-long galvanized steel cable tray 12 inches wide and 3 inches tall. The cable tray would be mounted about 3 inches above the ground on pre-fabricated concrete anchors spaced 10 feet apart. The tray to the tower would be armored to protect against vandalism and camouflaged to blend with the surroundings. The cable itself would be armored between the point that it emerges from the tray, to the tower, and for some distance up the tower.

The proposed facility also would include a backup generator for use in the event of interruption of commercial power. The generator would be a 20 kW diesel generator with a 204-gallon, double-walled, EPA-approved belly diesel fuel tank. The generator and diesel tank would be placed on a 10-foot by 6-foot reinforced concrete pad outside the building. The generator would be armored to protect against

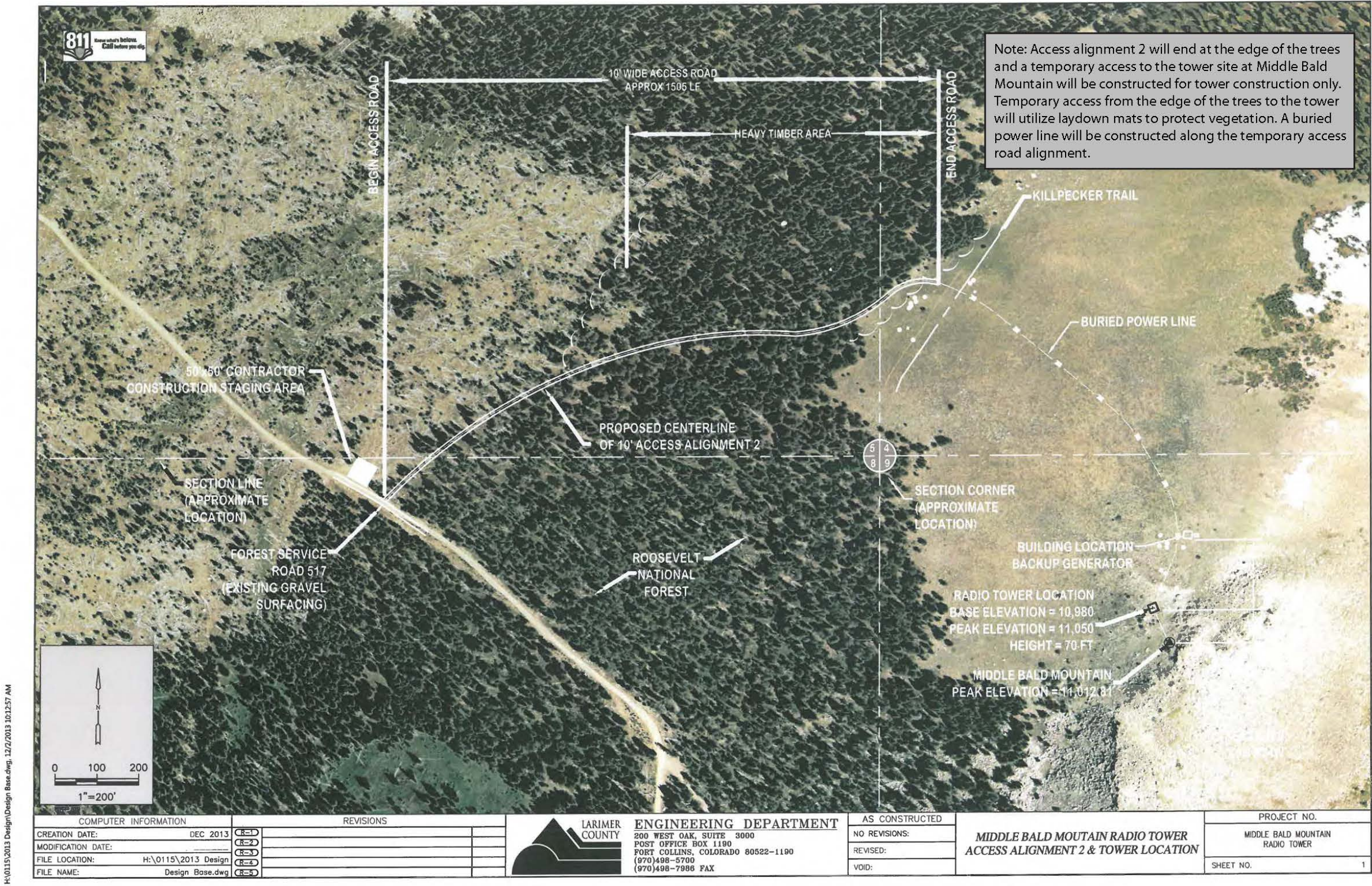
vandalism and camouflaged to blend with the surroundings. All camouflaging and concrete pad profile, texture, and color would be selected and/or approved by the Forest Service in the Communication Site Plan.

Radio Coverage

Pericle Communications Company (Pericle) conducted a drive test survey to measure radio coverage for both VHF and 800 MHz radio coverage with a transmitter near the summit of Middle Bald Mountain (Pericle 2009). Drive routes included, but were not limited to County Road 74E from U.S. 287 to Red Feather Lakes, County Road 103 from CO 14 to Four Corners, and CO 14 from Cameron Pass to U.S. 287. Based on the drive test results, Pericle concluded that the Middle Bald Mountain site would provide 99.3 percent coverage for VHF over the specified drive routes. The Middle Bald Mountain site improves 800 MHz coverage from the existing Digital Trunked Radio System (DTRS) sites from 48.2 percent to 87.9 percent.

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Figure 2 Middle Bald Mountain Site Layout



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Alternative 3: Environmentally Preferred and Forest Service Preferred Alternative: Government-Only Communication Site at the Killpecker Site

Site Location

The range of reasonable alternatives was developed with the help of public comments during the two scoping processes, which highlighted specific issues. Issues raised by the public prompted an alternative site to be located. Under this alternative action the Forest Service would issue an authorization to Larimer County for the construction and operation of a government-only communication site at the Killpecker site. The Killpecker site is located approximately one-half (0.5) miles northwest of the Middle Bald Mountain site, at an elevation of approximately 11,014 feet. The tower and building would hold equipment for use by Larimer County, the State of Colorado, the Fort Collins Water Department, volunteer fire departments, search and rescue organizations, and the Forest Service. Larimer County would be the lease holder and site manager. Larimer County, the State of Colorado, and the Fort Collins Water Department all use the Deadman communication site now and would remove their equipment from the Deadman site if the Killpecker site were authorized. The Forest Service would co-locate at the Killpecker site, as well. The Killpecker communication site would meet the purpose of and need for action by improving VHF and adding 800 MHz coverage and reliability in north central Larimer County and the Poudre Canyon for fire and medical first-responders, law enforcement, and other local, State, and Federal emergency and public services users of the VHF and 800 MHz radio systems (Pericle 2013). The Environmentally Preferred Alternative to authorize a communication facility at the Killpecker site, is the Forest Service's preferred alternative. **Figure 3** shows the overall site plan for the Killpecker site.

A connected action tied to an authorization of this communication site is that the Forest Service would issue an authorization to PVREA for the construction, operation, and maintenance of an overhead distribution power line to serve the communication site. The new power line would connect from PVREA's existing infrastructure near Red Feather Lake, west alongside the Deadman Road (County Road 162) to its junction with the Killpecker Road, then south alongside the Killpecker Road (NFSR 300) to its junction with the access road. The overhead power line would continue alongside the access road to the communication site building at the Killpecker site.

The Killpecker communication site is located in MA 5.11 (Emphasis on General Forest and Intermingled Rangeland). If the Decision is to authorize a designated communication site, the Forest Plan map would be amended to designate approximately 0.5 acres within the designated communication site boundary the site facilities as MA 8.3 (Emphasis on Utility Corridors and Electronic Sites).

Tower Location and Design

Just as at the proposed Middle Bald location, the proposed tower at the Killpecker site would be a self-supporting, three-legged, steel lattice tower approximately 70 feet in height. At the base, the distance between each of the three legs would be 6 feet. The tower would be located approximately 20 feet from the equipment building on a 20-foot by 20-foot concrete pad. There would be no guy wires.

The tower would include a ladder with an anti-climb guard to prevent unauthorized access. A galvanized finish with a low reflectivity (after weathering) would be used on the tower. The tower would require no lights; per FAA regulations only towers 200 feet or more in height must be lighted (47 U.S.C. §17.21). The concrete footings for each of the three tower legs would be buried to a depth that cannot be determined without a detailed soil and engineering analysis. If the site is authorized this analysis would be conducted prior to construction. Depending on the depth required, substantial soil and rock disturbance could be necessary.

Equipment on the tower would be the same as on a tower at the Middle Bald site: a six-foot diameter microwave dish; two 11 foot fiberglass antennae for the 800 MHz radios; one five foot omni-directional fiberglass antenna; four 10 foot dipole masts, with two VHF dipole antennae each; and a tower-top signal amplifier.

Building Location and Design

A rectangular, approximately 192 square-foot (12-foot by 16-foot) single-story modular equipment building approximately 10 feet high would be constructed on a 16-foot by 20-foot concrete building pad, up to 20 feet away from the tower. The building would be a transportable shelter designed to be skid-mounted on a concrete slab or pier foundation. It would be designed and camouflaged to blend in with the terrain to the greatest extent possible. A separate 10-foot by 6-foot concrete slab about 8 feet from the building would be needed to support the backup generator. All camouflage and concrete slab profile, texture, and color would be approved by the Forest Service in the Communication Site Plan.

Site Access

A permanent approximately 10-foot-wide access road surfaced with native material would extend about 1,800 feet from NFSR 300 to the communication facility at the Killpecker site. The Killpecker site would have road access all the way to the communication site building and tower (**Figure 3**), and access for monthly operations and maintenance visits would be unconstrained as long as the road remains snow-free. When snow prevents access by a high-clearance vehicle, access would be by over-the-snow vehicles or on foot. The access road would be added to the system as an administrative road and would be gated where it leaves NFSR 300.

Power Source and Power Line Route

Power for the communication facility's radio equipment, interior lights, receptacles, heating, and cooling systems would be provided by an 11.6 mile extension of the commercial electrical power grid from Red Feather Lakes. In a connection action, the Forest Service would authorize PVREA to construct and operate a 7.2 kV power line which would be installed overhead along County Road 162 (Deadman Road), NFSR 300, and alongside the access road to the communication facility.

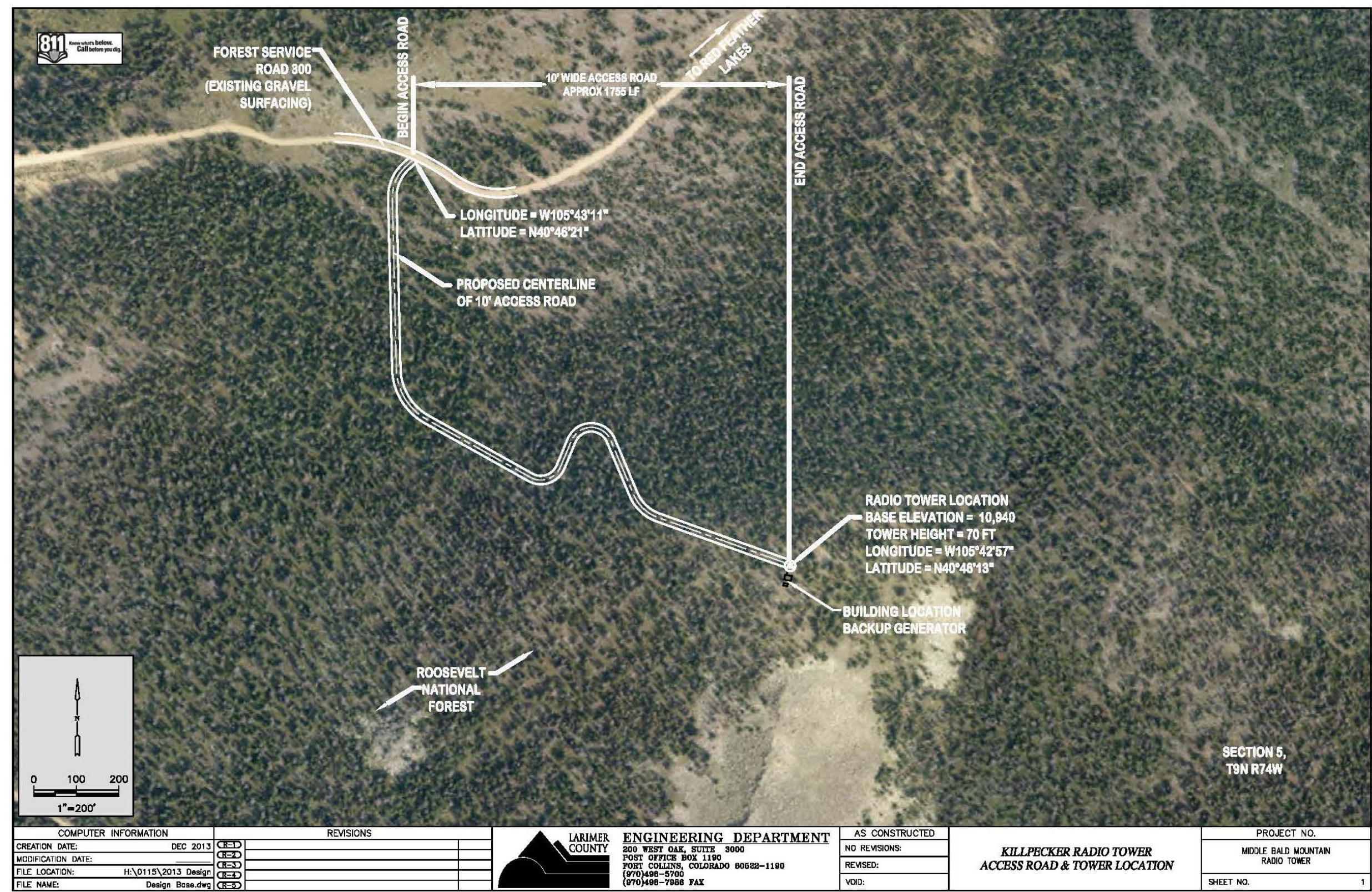
The power line would be installed on 29-foot-tall wooden monopoles for most of its length. The span between the overhead poles would range from 240 feet to 280 feet, and approximately 235 poles would be installed along the proposed alignment for the power line.

The power and communication feed lines between the tower and the equipment building would run an up to 20-foot-long galvanized steel cable tray 12 inches wide and three inches tall. The cable tray would be mounted overhead between the building and tower. The tray to the tower would be armored to protect against vandalism and camouflaged to blend with the surroundings.

The proposed facility also would include a backup generator for use in the event of interruption of commercial power. The generator would be a 20-kW diesel generator with a 204-gallon, double-walled, EPA-approved belly diesel fuel tank. The generator and diesel tank would be placed on a 10-foot by 6-foot reinforced concrete pad outside the building. The generator would be armored to protect against vandalism and camouflaged to blend with the surroundings. All camouflage and concrete slab profile, texture, and color would be approved by the Forest Service in the Communication Site Plan.

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Figure 3 Killpecker Site Layout



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Radio Coverage

Pericle conducted a drive test survey in 2013 to in order to measure the performance of the Killpecker site and compare it to the performance of the Middle Bald Mountain site (Pericle 2013). The report concluded that the Killpecker site would produce, on average, signals 7.5 dB stronger than the Middle Bald Mountain site in the Poudre Canyon.

Comparison of Project Components by Site

A comparison of project components proposed for the Middle Bald Mountain and Killpecker communication sites is provided in **Table 1** below.

Table 1 **Comparison of Project Components**

Project Component	Proposed Action Middle Bald Mountain Site	Preferred Alternative Killpecker Site
Site designation	Government Only	Government Only
Area to be designated as MA 8.3	0.5 acre	0.5 acre
Tower height	70 feet	70 feet
Building size (approximately)	192 square feet	192 square feet
Building design	Fiberglass or steel/composite transportable shelter; camouflaged to blend with the surroundings	Fiberglass or steel/composite transportable shelter, camouflaged to blend with the surroundings
Distance between tower and building	190 feet	20 feet
Power source	Commercial electric power with back-up generator	Commercial electric power with back-up generator
Power line length	12.8 miles	11.6 miles
Power line construction	Overhead from CR 162 to the end of the access road; then underground to the communication site	Overhead from CR 162 to the communication site
Site access	1,558-foot new access road extending from NFSR 517 to the edge of the trees west of the summit; overland from end of access road to the communication site	1,755-foot new access road extending from NFSR 300 to the communication site
Vehicle restrictions	Access between the end of the access road and the equipment building would be by foot, turf-tired UTV, or snowmobile	None

ACTIVITIES COMMON TO ALL ACTION ALTERNATIVES

Construction Sequencing and Equipment

Communication Facility and Access Road

Construction of the proposed communications facility would require the use of various pieces of heavy equipment, such as a crane to place the shelter and erect the tower; and delivery trucks that would pull trailers to carry tower sections, the building, and generator. One 50-foot by 50-foot construction staging area would be located near the intersection of the access road and the nearest NFSR (either NFSR 517 or NFSR 300). Construction of the communication facility would begin at the nearest NFSR and proceed toward the building and tower. Construction operations would begin by first defining a construction

corridor, staking the limits of disturbance and installing initial temporary erosion control best management practices (BMPs) followed by clearing the access road alignment of debris and removing trees and vegetation as necessary for safety. Topsoil would then be stripped and stockpiled to be re-used on finished slopes. Construction of the access road would then begin with excavation/embankment operations and culvert installation. Two 10-foot wide by 50-foot long temporary construction turnouts would be located alongside the new access road. Once the access road is completed, construction of the building and generator sites would be completed, followed by construction of the tower foundation and erection of the tower. Approximately 20 cubic yards of concrete are required for the building and tower foundations; concrete would be poured from a concrete truck directly to the ground, at the Killpecker site. Concrete would have to be delivered to the tower location on Middle Bald Mountain via a 190 foot boom. The final stage of construction would include placement of the building and generator, and installation of the communication cables between the building and the tower. Upon completion of construction, final erosion control BMPs, including seeding and mulching, would be completed as approved by the Forest Service in the Communication Site Plan, and required gates placed.

It is anticipated that power line construction would take three to four months. Access road and communication site construction is anticipated to take one month; an additional two weeks would be needed to install electronics and bring them to operational status. This is all anticipated to occur in a single summer season. Construction of the proposed project is anticipated to employ approximately 16 workers.

Power Line Installation

Poudre Valley REA (PVREA) is currently authorized by the Forest Service to operate and maintain all their power lines on National Forest System lands on the Canyon Lakes Ranger District under a master special use permit. If the proposed action were approved, PVREA would submit an application and construction design plans for the new power line. After review of the plans the Forest Service would issue a temporary permit and construction plan with any required design criteria. After the power line is built, PVREA would submit as-built plats and the line would be amended to their master special use permit.

Wood poles for power line installation would be set in augured holes with an 18-inch-diameter and average depth of 6 feet. Auguring and pole installation would be accomplished with a Digger Derrick truck or rubber-tired backhoe from roadways paralleling the power line. Poles would be installed approximately 10 feet off the edge of the road. Where the road curves, poles would be set at the radius of the curve and secured with anchor rods. The power line would typically cross over the road at these points. From the existing alignment of the roads, PVREA estimates that the installed power line would cross over the roads 30 to 40 times in either alternative.

The overhead power line would require a minimum clearance of vegetation tall enough to interfere with the power line from under the power line, and to a distance of 10 feet on either side of the centerline of the right-of-way (ROW). Hazard trees would be removed up to a distance of 50 feet either side of the centerline. Some of these trees may be cleared as a result of a hazard tree removal project planned by the Forest Service in this area. Construction activities and equipment required for construction of the communication site, access road, and power line are described in **Table 2**.

Table 2 Construction Activities and Equipment

Task	Equipment
Construction Staking	Survey Grade GPS, Pickups, All Terrain Vehicles

Table 2 Construction Activities and Equipment

Task	Equipment
Initial Erosion Control	Backhoe, Loader, Trencher
Strip and Stockpile Topsoil	Dozer, Loader, Excavator, Blade, Dump Trucks
Unclassified Excavation	Dozer, Loader, Excavator, Blade, Dump Trucks, Water Truck
Culvert Installation	Excavator, Backhoe, Loader, Compactor, Dump Trucks
Power Pole Installation	Digger Derrick Truck, Backhoe
Aggregate Base for Facilities	Blade, Grading Tractor, Roller, Dump Trucks, Water Truck
Building Foundation / Generator Slab	Excavator, Backhoe, Loader, Blade, Grading Tractor, Dump Trucks, Water Truck, Compactor, Concrete Trucks (with 190-foot boom for Middle Bald site)
Tower Foundation	Caisson Drill, Excavator, Loader, Concrete Trucks
Set Building / Generator	Crane, Delivery Trucks
Erect Tower	Delivery Trucks, Crane
Install Communication Cables	Track Skid Steer, Pickups, Backhoe, Excavator
Final Erosion Control	Backhoe, Loader, Trencher, Hydro seeder/Hydro Mulcher, Water Truck

Operation and Maintenance Activities

A Communication Site Management Plan would be developed that is attached to and made a part of the special use authorization that would be issued to Larimer County. The Site Management Plan would document the policies, procedures, and standards that would be used to administer the communication site, including policies, procedures, and standards related to general operation and maintenance of equipment, site maintenance (including noxious weed management), fire prevention and hazard reduction, spill prevention control and countermeasures, and security and law enforcement.

Larimer County Technical Communications personnel would access the site at least monthly for routine maintenance. In addition, Larimer County would conduct an annual, certified inspection of the facilities and equipment covered by the authorization. The inspection would include a technical review that should ensure that all authorized equipment is operating in accordance with requirement of the site management plan, the applicable Federal Communications Commission license or National Telecommunications and Information Administration authorization, American National Standards Institute standards, and the manufacturer's specifications. In addition, the inspection would ensure that the authorized equipment is secure, free of rust, properly grounded, and otherwise properly operated and maintained. A copy of the inspection report, certified by a telecommunication specialist, would be provided to the Forest Service within 30 days of completion of the inspection. The Forest Service also may conduct periodic reviews to monitor for authorization compliance.

Generator re-fueling would normally take place once annually, but is dependent on the number and duration of commercial power outages. Replacement of site batteries would take place about every 7 years. Additional special or major maintenance actions are dependent on equipment failures, replacements and required upgrades to VHF or 800 MHz systems.

DESIGN CRITERIA AND CONSTRUCTION BEST MANAGEMENT PRACTICES

Design Criteria

- The profile, texture, and color of all development structures will be approved by the Forest Service in the Communication Site Plan.
- Design and construction of the power line will conform with the Suggested Practices for Avian Protection on Power Lines (Avian Power Line Interaction Committee 2006).
- Pole placement for power line installation will avoid Site 5LR11364.3 (Old Deadman Road) and historic water control features along Deadman Road (Site 5LR11364).
- The power line will be constructed so that, anywhere the power line crosses over a road, there will be a minimum of 18-vertical clearance between the road surface and the power line.
- PVREA will submit design and construction plans prior to construction; the plans will be approved by the Forest Service prior to construction.
- Vegetation clearance under the power line will be limited to that which is tall enough to interfere with the power line, to a distance of 10 feet on either side of the centerline of the ROW. Hazard trees will be removed up to 75' on either side of the power line. All trees removed will be chipped and spread on the existing forest floor to a depth no thicker than three inches, masticated and spread on the existing forest floor to a depth no thicker than six inches, or removed as timber product.
- Vegetation removal during trenching for the power line between the end of the access road and the equipment building at the Middle Bald Mountain site will be accomplished using "tundra protection" procedures that have proven effective elsewhere for burying cables in similar environments. These techniques call for careful removal of the intact surface layer (similar to removing turf grass sod, but more difficult in shallow rocky soils). This material is set aside, and then replaced after the power line is laid in the trench. Additional restoration and revegetation is performed as needed, based on at least several years of monitoring.
- Disturbance for construction of access roads will be limited to an approximately 18-foot wide corridor through old growth cover types. This will allow for an approximately 10-foot wide travelway and a 4-foot wide clearing limit on either side of the access road.
- No surface disturbance will occur within 100 feet of the known population of the rare plant *Pyrola picta* identified along NFSR 300. A trained botanist must be present during vegetation removal for construction and ROW maintenance near the known population.
- Wetland and waterbody surveys will be conducted prior to construction in areas to be disturbed for the power line along NFSR 300. All wetlands and waterbodies will be strictly avoided. No surface disturbance (including overland vehicle travel) will occur within 100 feet of wetland or riparian areas. All vegetation thinning within riparian or wetland areas will be completed either by hand or from the road. If wetlands and waterbodies cannot be avoided, consultation with the Forest Service to determine additional mitigation will be required, and features identified as jurisdictional during surveys will require consultation with the U.S. Army Corps of Engineers.
- Access roads are designed as Level 2 roads with a minimum traveled width of 10 feet. Level 2 roads are not crowned but may be ditched depending on the surrounding topography. Grades below 8% are maintained wherever possible; however, 8%-12% grades may be maintained for less than 200 feet. Local materials are used, however these materials are generated from within

road profile itself and it is rarely necessary to obtain additional material. Branches and vegetation are cleared 4 feet on each side of the traveled way.

- Soil preparation, soil conditioning or topsoil, seeding, mulching, and mulch tackifier will be required to restore areas temporarily disturbed by construction. Disturbed surfaces will be left in a roughened condition by equipment tracking, scarifying or disking the surface on contour with a two- to four- inch minimum variation in soil surface, depending on the amount of equipment traffic and compaction. A mix of native seed will be drilled into disturbed areas except in small areas not accessible to a drill; in those areas, seed will be hand broadcast at double the application rate, and raked into the soil. Hydromulch will be applied to all seeded areas immediately following the application and raking of seed. An organic soil conditioner (i.e., compost, topsoil, peat, mulch or similar) will also be applied to all seeded areas, per Forest Service specification.
- Restoration activities will conform to the Forest revegetation policy and must be approved in advance by the Forest Botanist or botanical representative.
- Prior to construction, the load capacity of load-spreading mats and construction equipment weights will be used to determine the number of passes construction equipment could take on any given route across the meadow at the Middle Bald Mountain site. Mats may have to be moved occasionally to alter the route from treeline edge to the site, to minimize rutting.
- A Spill Prevention Control and Countermeasure Plan will be included in the Site Management Plan that is attached to and made a part of the special use authorization.

Construction Best Management Practices

Construction best management practices (BMPs) to be implemented during project construction are described below.

Materials Handling and Spill Prevention

- Bulk storage structures for petroleum products and any other chemicals will have secondary containment or equivalent protection so as to contain all spills and prevent any spilled material from entering State waters.
- The construction contractor will inspect and certify equipment and vehicles daily to ensure petroleum, oils, and lubricants are not leaking onto the soil or pavement. Absorbent material or containers will be used to prevent leaking petroleum, oils, and lubricants from reaching the soil or pavement. The contractor shall have absorbent material or containers of sufficient capacity to contain any leak that can reasonably be foreseen.
- Surplus construction materials and waste debris will be removed from the site no later than 30 days after construction has been completed.

Stockpile Management

- Any material stockpiles will be located away from sensitive areas and confined so that no material or their run-off will enter State waters.
- Silt fence, berms or other sediment control devices will be placed at the toe (or just beyond toe) of all erodible stockpiles (including topsoil).
- There will not be stockpiling or side casting of waste materials adjacent to any State waters.

Vehicle Tracking

- Vehicle and equipment inspection for noxious and undesirable weeds will occur prior to site entry and each re-entry. Inspectors, inspection rejection thresholds, and washing stations will be determined by the Forest Service prior to project implementation.
- The construction contractor will certify that construction equipment has been cleared prior to site arrival, and again prior to leaving the staging area on NFSR 517 or NFSR 300, where weeds are known to be present. Vehicles shall be free of soil and debris capable of transporting noxious weed seeds or roots onto the construction site.

Storm Water Management

- A site-specific erosion control plan will be provided to the Forest Service for approval by the Forest Service prior to commencement of construction.
- Surface runoff from above the access road will be captured and directed along the roadside to outlet pipes. All outlet pipes will be protected with erosion logs at the downstream end.
- Perimeter control will be established to prevent the potential for pollutants leaving the construction site boundaries. Perimeter control may consist of vegetation buffers, berms, silt fence, erosion logs, existing landforms, or other BMPs as approved.
- Concentrated discharge points will be protected with erosion control structures and erosion logs at the outlet end.

CONSTRUCTION DISTURBANCE

Temporary and Permanent Disturbance Area Calculations

Temporary and permanent disturbance areas for construction and operation of a communication site at the Middle Bald Mountain Site or Killpecker Site are summarized in **Table 3** below.

Table 3 Comparison of Temporary and Permanent Disturbance Areas

Project Component	Proposed Action Middle Bald Mountain Site	Preferred Alternative Killpecker Site
<i>Temporary Disturbance (acres)</i>		
Communication site	0.5	0.3
Staging area & turnouts	0.1	0.1
Access road	2.1	2.4
Power line	32.1	28.1
Total	34.8	30.9
<i>Permanent Disturbance (ft²)</i>		
Communication site	1,000	800
Access road	15,600	17,600
Power line	1,500	500
Total	18,100 (0.4 acre)	18,900 (0.4 acre)

MONITORING

Cultural Resources

If the Proposed Action is selected, a monitoring program would be implemented during construction of the communication site at Middle Bald Mountain to ensure avoidance of recorded Site 5LR13190.

Radiation

All communications uses shall meet American National Standards Institute, Federal Communications Commission, and Forest Service regulations, policy, guidelines, and standards concerning radiation limitations.

Monitoring radiation levels at the site is the responsibility of all site users and shall occur at intervals to comply with regulations and guidelines. A copy of the monitoring report shall be provided to the Forest Service within 30 days of its completion.

Onsite radio frequency radiation (RFR) measurements shall be taken using appropriate equipment that can adequately measure levels both on the tower and on the ground before mitigation measures related to RFR are implemented.

Security fences with RFR notice signs are required around areas that exceed public use levels. All fencing location and design shall be pre-approved by the Forest Service in the Communication Site Plan.

Any identified RFR problems that are, or could be, a human health hazard shall be corrected within 24 hours after measurement tests have been completed, or the equipment involved shall be removed from the site by the site user. Any ground disturbance associated with correction of RFR problems or removal of equipment causing the problem must have prior written approval of the Forest Service authorized officer.

SPECIES CONSIDERED AND EVALUATED

The following tables display all federally threatened, endangered, or proposed species, listed under the Endangered Species Act (ESA), and Forest Service sensitive and management indicator species (MIS) that may occur on or could be affected by actions on the Canyon Lakes Ranger District and that currently require consideration for effects. Prairie grassland species that occur only on the Pawnee National Grassland and do not occur on the District have been excluded. A project-specific threatened, endangered, and proposed species list for the Middle Bald Mountain Area Communication Site project area was obtained from the U.S. Fish and Wildlife Service's (FWS) Information, Planning, and Conservation System (IPAC) on-line tool (www.fws.gov/ipac) on June 2, 2014. IPAC is recognized by FWS as an appropriate means of identifying listed species for project areas. A copy of the IPAC documentation can be found in the project file.

A pre-field review was conducted of available information to assemble occurrence records, describe habitat needs and ecological requirements, and determine whether field reconnaissance is needed to complete the analysis. Sources of information included USFS GIS data, the Colorado Natural Heritage Program (CNHP) database (CNHP 2007), and publicly available research from federal and state wildlife agencies. Additionally, field surveys were conducted for the project area in 2007 (BMEC 2007).

Consultation

Interagency cooperation between the Forest Service and the US Fish and Wildlife Service (USFWS) regarding proposed, threatened, or endangered species is described in Section 7 of the Endangered Species Act. Definitions relating to “consultation” and “conference” are given in FSM supplement 2600-2013-1. Consultation on the proposed action has not previously occurred.

Table 4 Threatened, Endangered, and Proposed Species Considered and Analyzed

Species Name	Status	Species to be Carried Forward for Detailed Analysis
Canada lynx (<i>Lynx canadensis</i>)	Federally Threatened	Yes
Wolverine (<i>Gulo gulo</i>)	Proposed Federally Threatened	Yes
Preble’s meadow jumping mouse (<i>Zapus hudsonius preblei</i>)	Federally Threatened	No. Project area is above the upper elevational range (7,600 feet) of this species.
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Federally Threatened	No. Suitable habitat does not occur within the project area.
Black-Footed ferret (<i>Mustela nigripes</i>)	Federally Endangered	No. Suitable habitat does not occur within the project area.
¹ Whooping crane (<i>Grus americana</i>)	Federally Endangered	No. No water depletions are anticipated.
¹ Least tern (interior population) (<i>Sterna antillarum</i>)	Federally Endangered	No. No water depletions are anticipated.
¹ Piping plover (<i>Charadrius melodus</i>)	Federally Threatened	No. No water depletions are anticipated.
Greater sage grouse (<i>Centrocercus urophasianus</i>)	Federal Candidate	No. Suitable habitat does not occur within the project area.
Greenback Cutthroat trout (<i>Oncorhynchus clarki stomias</i>)	Federally Threatened	No. Suitable habitat does not occur within the project area.
¹ Pallid sturgeon (<i>Scaphirhynchus albus</i>)	Federally Endangered	No. No water depletions are anticipated.
Ute Ladies’ Tresses Orchid (<i>Spiranthes diluvialis</i>)	Federally Threatened	No. The proposed Project is above the elevation range for this species.
Colorado Butterfly Plant (<i>Gaura neomexicana</i> var. <i>coloradoensis</i>)	Federally Threatened	No. The proposed Project is above the elevation range for this species.
North Park phacelia (<i>Phacelia formosula</i>)	Federally Threatened	No. Suitable habitat does not occur within the project area.
¹ Western Prairie Fringed Orchid (<i>Platanthera praeclara</i>)	Federally Threatened	No. No water depletions are anticipated.

¹ Water depletion projects in the Platte River system may affect these species.

Table 5 Sensitive Species and Management Indicator Species Considered in the Analysis

Species Name	Status	Species to be Carried Forward for Detailed Analysis
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Table 5 Sensitive Species and Management Indicator Species Considered in the Analysis

Species Name	Status	Species to be Carried Forward for Detailed Analysis
Gray Wolf (<i>Canis lupus</i>)	Forest Sensitive	Yes.
American marten (<i>Martes americana</i>)	Forest Service Sensitive ¹	Yes
North American river otter (<i>Lontra canadensis</i>)	Forest Service Sensitive	No. Suitable habitat does not occur within the project area.
Rocky Mountain bighorn sheep (<i>Ovis canadensis canadensis</i>)	Forest Service Sensitive and MIS	No. Suitable habitat does not occur within the project area.
Pygmy shrew (<i>Sorex hoyi montanus</i>)	Forest Service Sensitive	Yes
Fringed myotis (<i>Myotis thysanodes</i>)	Forest Service Sensitive	Yes
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Forest Service Sensitive	Yes
Hoary bat (<i>Lasiurus cinereus</i>)	Forest Service Sensitive	Yes
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Forest Service Sensitive	No. Suitable habitat does not occur within the project area.
American peregrine falcon (<i>Falco peregrinus anatum</i>)	Forest Service Sensitive	No. Suitable habitat does not occur within the project area.
Northern goshawk (<i>Accipiter gentilis</i>)	Forest Service Sensitive	Yes
Northern harrier (<i>Circus cyaneus</i>)	Forest Service Sensitive	No. Suitable habitat does not occur on Forest Service lands within the project area.
Flammulated owl (<i>Otus flammeolus</i>)	Forest Service Sensitive	Yes
Boreal owl (<i>Aegolius funereus</i>)	Forest Service Sensitive	Yes
Lewis' woodpecker (<i>Melanerpes lewis</i>)	Forest Service Sensitive	Yes
Olive-sided flycatcher (<i>Contopus borealis</i>)	Forest Service Sensitive	Yes
Black swift (<i>Cypseloides niger</i>)	Forest Service Sensitive	No. Suitable habitat does not occur within the project area.
Purple martin (<i>Progne subis</i>)	Forest Service Sensitive	No. Project area is outside of the current species range in Colorado.
White-tailed ptarmigan (<i>Lagopus leucurus</i>)	Forest Service Sensitive	Yes, however alpine habitat within the project area is not extensive enough to support a population.
Boreal toad (<i>Anaxyrus boreas boreas</i>)	Forest Service Sensitive and MIS	Yes. Suitable habitat (beaver ponds) exists within the project area.

Table 5 Sensitive Species and Management Indicator Species Considered in the Analysis

Species Name	Status	Species to be Carried Forward for Detailed Analysis
Northern leopard frog (<i>Lithobates pipiens</i>)	Forest Service Sensitive	Yes
Wood frog (<i>Lithobates sylvatica</i>)	Forest Service Sensitive	No. Project area is outside of the current species range in Colorado.
Hudsonian emerald (<i>Somatochlora hudsonica</i>)	Forest Service Sensitive	No. Project area is outside of the current species range in Colorado.
Arapahoe snowfly (<i>Capnia Arapahoe</i>)	Forest Service Sensitive	No. The entire project area is outside the elevation range for this species.
Elk (<i>Cervus elaphus</i>)	MIS	Yes
Mule deer (<i>Odocoileus hemionus</i>)	MIS	Yes
Golden-crowned kinglet (<i>Regulus satrapa</i>)	MIS	Yes
Hairy woodpecker (<i>Picoides villosus</i>)	MIS	Yes
Mountain bluebird (<i>Sialia currucoides</i>)	MIS	Yes
Pygmy nuthatch (<i>Sitta pygmaea</i>)	MIS	Yes
Warbling vireo (<i>Vireo gilvus</i>)	MIS	Yes
Wilson's warbler (<i>Wilsonia pusilla</i>)	MIS	Yes

¹ Current Forest Service sensitive species from revised August 2013 Regional Forester's list.

EXISTING CONDITIONS

Project Area

The summit of Middle Bald Mountain, approximately 11,000 feet above sea level, is accessible via the Killpecker Creek Trail. There are no recreation facilities on Middle Bald Mountain. The area is used by hikers, horseback riders, single track motorized vehicles, and mountain bikers traveling on the Killpecker Creek Trail, which rises out of a line of trees into a meadow on the western flank of Middle Bald Mountain and then dips back into the trees. There is no trail across the subalpine meadow to the rock-outcrop summit. From the summit, visitors have access to views from Western Colorado to Kansas and from southern Wyoming to central Colorado. The nearest road access is within approximately 0.25 mile of the summit on low-standard National Forest Service Road 517 (FS 517).

The project area is located within the subalpine and montane life zones and ranges in elevation from 8,260 feet at the point where FS 162 crosses South Lone Pine Creek to 11,002 feet at the summit of Middle Bald Mountain. The Middle Bald Mountain ridge defines the drainage boundary between South Lone Pine Creek to the east and Killpecker Creek to the west.

At elevations above 10,840 feet the subalpine life zone begins to appear. At elevations between approximately 10,840 feet and 9,500 feet the project area is dominated by subalpine forest comprised of

subalpine fir (*Abies lasiocarpa*) and Engelmann spruce (*Picea engelmannii*), with lodgepole pine also present. At elevations below 9,500 feet montane forest cover types dominated by lodgepole pine (*Pinus contorta*) and aspen (*Populus tremuloides*) are present as well as riparian and wetland cover types. As elevation decreases to the east ponderosa pine (*Pinus ponderosa*) increases in frequency until it is the dominant tree species throughout the eastern 1/3 of the project area. That portion of the project area is comprised of a mix of lodgepole pine and ponderosa pine. Observed cover types are described in detail in a following section of this report.

That same part of the project area exhibits some obvious geological differences from the rest of the project area. The entire area is interspersed with linear, southwest to northeast-oriented granite stone outcroppings. Soils in this area are more likely to be well drained, and thus drier, than the remainder of the project area due to the presence of these outcrops and the soils generated by their slow decomposition.

Vegetation

The Project is predominantly located in the Crystalline Subalpine Forests EPA Level IV ecoregion, with the eastern portion of the power line located within the Crystalline Mid-Elevation Forests ecoregion. Vegetation communities along the power line alignment and the Middle Bald Mountain site and access road were surveyed in July of 2007 (BMEC 2007). A general reconnaissance of the Killpecker alternative tower site and access road was completed in the fall of 2013 (AECOM 2013). Observations recorded during initial field evaluation included vegetation communities and dominant vegetation associated with each vegetation community. A rare plant survey of the Killpecker Alternative site and access road was conducted in the summer of 2013 by a USFS botanist.

The project area is characterized as mountainous, with lodgepole pine dominant at the lower elevations and subalpine fir and Engelmann spruce dominant at the higher elevations. There is an increasing amount of dead woody vegetation (snags) from mountain pine beetle infestation. There are eight vegetation communities within the project area including ponderosa pine woodland, mountain shrub-willow, mixed conifer forest, aspen, grassland, subalpine fir and Engelmann spruce, and lodgepole pine (see **Figure 4**). Intermixed within the vegetation communities are areas of rock outcrops. A 50-foot wide corridor around project components was used to define the affected environment for vegetation cover types. **Table 6** provides a summary of the acreages for each vegetation cover type within the project area affected environment for vegetation. Wetland communities are included in this table but discussed in greater detail in Section 3.6.6. The vegetation cover types present within the project area are illustrated on the **Figure 4**.

Descriptions of the plant communities for each vegetation cover type are provided below. Species nomenclature is consistent with the NRCS Plants Database (NRCS 2013).

Table 6 Analysis Area Vegetation Cover Types

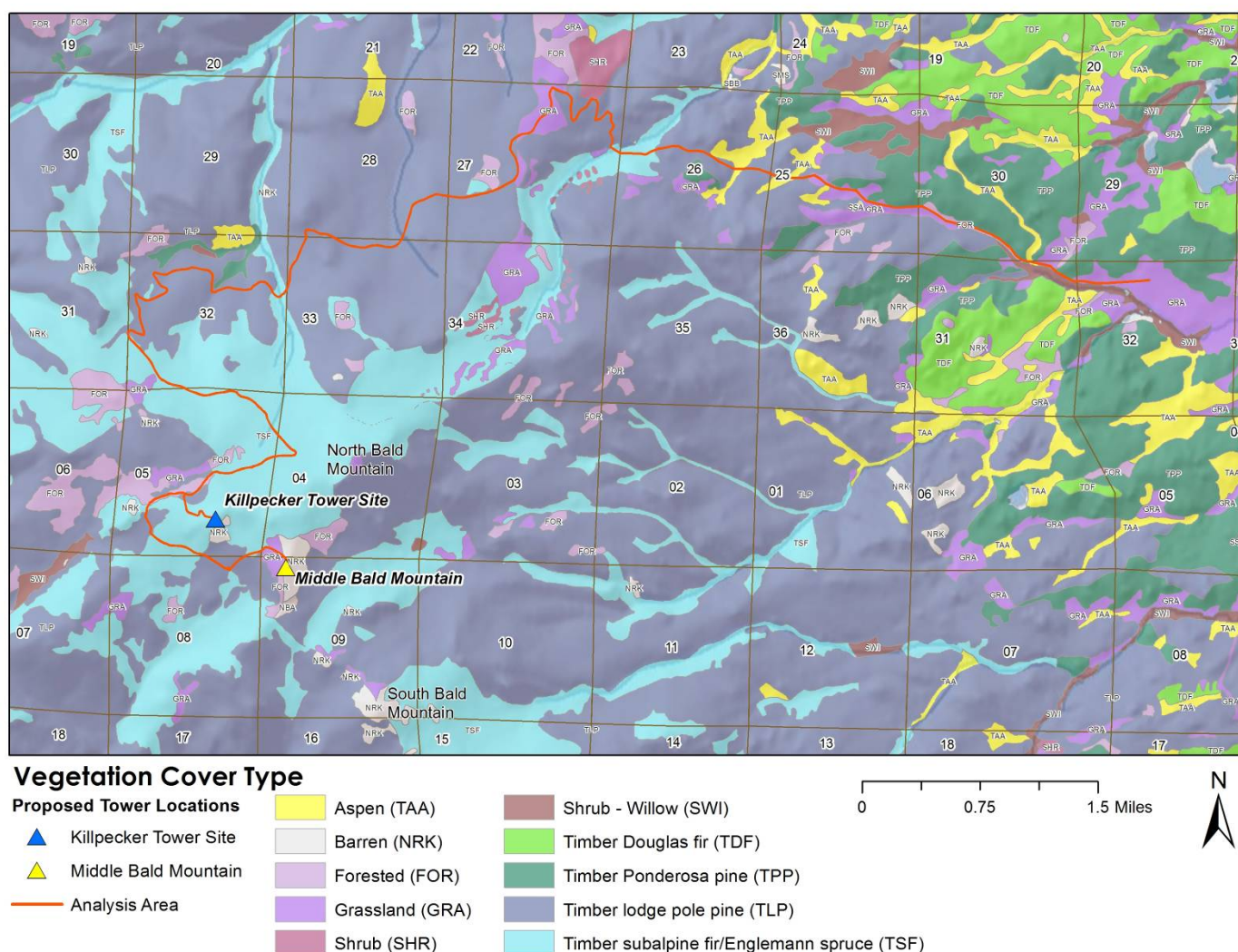
Symbol	USFS Cover Type	Acre
TLP	Lodgepole pine	38
TSF	Subalpine fir / Engelmann spruce	20
GRA	Grassland	12
FOR	Forested (Mixed Conifer)	6
NRK	Barren	1
SWI	Shrub - Willow	0.6

TAA	Aspen	2
TPP	Ponderosa Pine	2
SHR	Mountain Shrub	0.02

Lodgepole Pine

This community type is found at middle to higher elevations of the project area. Lodgepole pine is the dominant overstory species with quaking aspen interspersed. The shrub prickly wild rose (*Rosa acicularis*) occurs occasionally. Herbaceous species include goldenrod (*Solidago* spp.), lupine (*Lupinus* sp.), Idaho fescue (*Festuca idahoensis*) and western yarrow (*Achillea lanulosa*)

Figure 4 Vegetation Cover Type



Subalpine Fir / Engelmann Spruce

The overstory of this cover type is dominated by Engelmann spruce and subalpine fir in varying proportions but blue spruce (*Picea pungens*), lodgepole pine and Douglas-fir and limber pine (*Pinus flexilis*) also were present. This forest type generally occurred between 8,200 feet and 10,800 feet. The understory of the cover type varies but commonly includes grouse whortleberry (*Vaccinium scoparium*),

common dandelion (*Taraxacum officinale*), smooth brome (*Bromus inermis*), western yarrow, goldenrod, pussytoes (*Antennaria* spp.), and Idaho fescue. As both dominant tree species are shade-tolerant, stands of subalpine forest are typically uneven-aged and multi-storied, with younger spruces and firs comprising the substrata.

Grassland

This vegetation community consists of herbaceous communities found at the summit of Middle Bald Mountain, and interspersed areas found along NFSR 300. The grassland along NFSR 300 is composed of herbaceous and forb species including bottlebrush squirreltail (*Sitanion hystrix*), needle-and-thread (*Hesperostipa comata*), junegrass (*Koeleria macrantha*), sulphur-flower buckwheat (*Eriogonum umbellatum*), common dandelion, smooth brome, western yarrow, and Idaho fescue.

The grassland community at the summit of Middle Bald Mountain was surveyed by the Forest Botanist in 2012 in response to concerns raised by the public, in a report prepared by Dr. Jim Erdman. The response of the Forest Botanist to the vegetation community classification issues raised in *Middle Bald Mountain's Alpine-Tundra Landscape, Unique in the Laramie Mountains Region of Northern Colorado* (Erdman 2012) is presented below:

The Forest Service Botanist has reviewed the paper entitled Middle Bald Mountain's Alpine-Tundra Landscape, Unique in the Laramie Mountains Region of Northern Colorado, by Dr. Erdman (revised version dated March 22, 2012). Although it is true that alpine-affinity plants do occur on the site, the botanist respectfully disagrees with the report's overall assessment that the area exhibits a true alpine plant community (referred to as "alpine turf"). By definition, an alpine life zone occurs above upper treeline. Numerous limber pine trees occur from the base nearly to the rocky summit. They are situated clearly above the surrounding grass-herb plant community referred to as "alpine" in the report, which means that the grass-herb community rests below treeline. Consequently, this area cannot be considered a true alpine community. Some of these limber pine trees are clearly visible above the grass-herb foreground. Furthermore, although there are numerous alpine plant species present in the grass-herb community, they are not dominant. Their mere presence does not imply that the community as a whole is "alpine", or is functioning ecologically as an alpine community.

In addition to plants that typically occur above treeline cited in the report (i.e., alpine avens, alpine sandwort, and alpine willow), the botanist also observed localized presence of the alpine-affinity vagrant lichens *Coelocaulon* (*Cetraria*) *aculeatum* and *Dactylina madreporiformis*. Although alpine plants are present, they are not dominant in terms of canopy cover or plant production. The grass-herb complex is dominated by true subalpine grasses and herbs, with cosmopolitan (common in subalpine and transitional into alpine) bryophytes and lithic lichens dominating the non-vascular community. The botanist's professional opinion is that this area is more accurately considered to be an upper subalpine meadow and true alpine community, with subalpine plants being more dominant. The demarcation between subalpine and alpine plant communities is often blurred and indistinct. The summit area of Middle Bald Mountain is currently situated at the interface of two life zones. It is possible that under differing climatic conditions of the long-term past, this area could have been dominated either by alpine or subalpine vegetation. In the past, it has possibly and may continue to vacillate between the two over time. These scenarios are purely speculative.

Whether the plant community is considered true "alpine" or "subalpine transitional to alpine" is inconclusive. However, the botanist agrees with the report conclusions that the grass-herb community is noteworthy. The botanist concludes that a transitional community such as this is not present elsewhere on the District at such an eastern location. Consequently, the community carries distinction and adds value to local biological diversity. He also recognizes that the alpine elements

and overall nature of the community render it sensitive to anthropogenic disturbances. The report's reference to the community as "unique" carries vague meaning, because all plant communities at some level of scale can be considered "unique" in their specific species assemblage. Each will differ from all other plant communities. Based upon the botanist's review of past rare plant survey reports and his experience conducting several rare plant surveys in the area, the community does not include any rare plant species or unusual combinations of subalpine and alpine plants. It is unknown whether similar communities occur further west; for example, in the Rawah Wilderness Area (Popovich 2013).

Mixed Conifer Forest

The mixed conifer forest is found predominantly in the northeastern portions of the project vicinity. The canopy cover varies in this vegetation community, with some areas having a more open canopy. Dominant species are coniferous species including Ponderosa pine, Douglas-fir, lodgepole pine (*Pinus contorta*), and limber pine (*Pinus flexilis*). Ponderosa pine and Douglas-fir are more dominant in the areas with the open canopy cover. In the areas with a closed canopy, the understory includes common juniper, fivepetal cliffbush, and kinnikinnick. Open canopy understory species include Geyer's sedge (*Carex geyeri*), Rocky Mountain fescue, common juniper, kinnikinnick, and mountain ninebark.

Ponderosa Pine Woodland

The ponderosa pine community is found at the lower elevations of the project area (8,300 feet to 8,800 feet). Ponderosa pine is the dominant over story tree with small areas of quaking aspen. Common shrubs include antelope bitterbrush (*Purshia tridentata*), shrubby cinquefoil (*Potentilla fruticosa*), fringed sage, and wax current (*Ribes cereum*). Common understory herbaceous species include mountain muhly (*Muhlenbergia montana*), bottlebrush squirreltail (*Sitanion hystrix*), pussytoes, needle-and-thread (*Hesperostipa comata*), junegrass (*Koeleria macrantha*), sulphur-flower buckwheat (*Eriogonum umbellatum*), hairy false goldenaster (*Heterotheca villosa*) and penstemon (*Penstemon* spp.).

Mountain Shrub

Often in association with the Ponderosa Pine woodland vegetation community, the mountain shrub mosaic is scattered throughout the project vicinity. It covers 15 percent of the project vicinity. Dominant vegetation are shrubs, including alderleaf mountain mahogany, fivepetal cliffbush (*Jamesia Americana*), common juniper, chokecherry (*Padus virginiana*), kinnikinnick (*Arctostaphylos uva-ursi*), and Woods' rose (*Rosa woodsii*). Dominant trees include Ponderosa pine, and Douglas-fir (*Pseudotsuga menziesii*), with limited cover.

Aspen

Quaking aspen (*Populus tremuloides*) is the dominant tree species in this cover type. These stands are often comprised of cloned coppice stems and thus are genetically identical. Mid-story tree species may include aspen saplings, particularly along the periphery of the stand. The shady interior of aspen stands frequently provides conditions for shade-tolerant conifers such as fir and spruce in the mid-story; the process of forest succession often leads to a coniferous forest after the pioneering aspen stand gives way over time. Tall forb communities usually cover the ground. These may be comprised of cow parsnip (*Heracleum sphondylium*), wild strawberry (*Fragaria* spp.), water hemlock (*Cicuta douglasii*), bracken fern (*Pteridium aquilinum*) and other forbs and grasses.

Willow

Any type of wetland with a woody shrub overstory would be considered a scrub-shrub wetland. Willows (*Salix* spp.) are the most common shrubs to dominate scrub-shrub wetlands, but alders (*Alnus incana*), red osier dogwood (*Cornus sericea*), birches (*Betula* spp.), and other woody shrubs also may dominate the overstory. Lower stratum vegetation may include sedges and rushes and grasses such as red top (*Agrostis* sp.) and bluegrass (*Poa pratensis*), depending upon site moisture. Other common species include timothy (*Phleum pratense*), common dandelion, and bog orchid (*Limnorchis saccata*).

Old Growth

The project area is primarily located in the Deadman Geographic Area with a Forest Plan goal to encourage recruitment and retention of old-growth. Old-growth stands contain older, larger diameter trees and other structural features such as snags and down logs. The dominant lodgepole pine stands observed on Middle Bald Mountain likely initiated in the late 16th to early 17th centuries. There are some notable old-growth conifer trees from that era in the stand to the west of the meadow below the Middle Bald Mountain summit. Lodgepole pine stands of this age are unusual and so far undocumented in the Colorado Front Range. Lodgepole pine stands typically experience stand-replacing disturbances, usually in the form of crown fire, within 200 to 300 years. However, this ancient stand does not appear to have experienced a stand-replacing disturbance for nearly 500 years, but has been slowly transforming, a few trees at a time, through classic gap dynamics (Huckaby and Négron 2014).

Under the Middle Bald Mountain alternative, approximately 3 acres of inventoried old growth forest and approximately 2 acres of old growth retention areas would be impacted by the construction and operation of the power line and access road. Prior to construction of the access road from NFSR 517 through the band of trees to the west of the Middle Bald summit, or of the access road from NFSR 300 to the Killpecker site, presence of notable old-aged conifer trees would be determined. Such trees would be avoided when practicable.

Under the Killpecker alternative, approximately 2.5 acres of inventoried old growth forest would be impacted by the construction of the access road and overhead power line. Approximately 1 acre of a designated old growth retention area would be impacted by the construction and operation of the power line, access road, and proposed tower site.

Old growth areas exist near portions of the new access roads and tower sites. Under the proposed action, approximately 3 acres of inventoried old growth forest and approximately 2 acres of old growth retention areas would be impacted by the construction and operation of the power line and access road.

Forest Plan direction for these stand allocations in lodgepole pine types is to manage vegetation to achieve a mix needed for wildlife habitat and to reduce fuel loading, manage lodgepole stands to reduce fuels, and to emphasize old-growth forest conditions. Impacts to old-growth areas from construction and operation activities would be long-term.

Wetlands

Riparian and wetland areas comprise a small percentage of the lands in the West, but their importance to the surrounding ecosystems and associated species is disproportionately great. Most wildlife species use riparian areas at some point in their life cycles (e.g., many migratory birds during breeding and migration seasons), and some depend almost entirely on these systems (e.g., amphibians). Wetlands and riparian areas are often rich in vegetation diversity and structure, providing food, water, shade, and cover to wildlife and livestock, in addition to acting as water purifiers, supplying groundwater recharge, and aiding in flood control.

Waters of the U.S. are defined in 33 CFR Part 328, Section 3 as all non-tidal waters that are currently, or were used in the past, or may be susceptible to use in interstate commerce; all interstate waters including wetlands (all types of wetlands, including fens, bogs, etc.); all other waters such as interstate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, of which the use, degradation or destruction could affect interstate commerce; and all impoundments of waters otherwise defined as waters of the U.S. under this definition. In addition, tributaries of the above listed waters, including arroyos and other intermittent drainages, and wetlands adjacent to the above waters also are considered to be waters of the U.S.

Criteria used by the USACE to determine whether a drainage constitutes a waters of the U.S. include presence of a defined bed, banks, or evidence of an ordinary high water mark. Wetlands adjacent to other Waters of the U.S., such as streams, also are considered to be waters of the U.S. In addition, and as used herein, the term “wetlands” has a regulatory definition as defined in 33 CFR 328. 7(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Note that the frequency and duration of saturation may vary by geographical region, and is largely dependent upon local climatic conditions.

According to the USACE’s 1987 Wetland Delineation Manual, a “three-parameter” approach is required for delineating USACE-defined wetlands (USACE 1987), where areas are identified as wetlands if they exhibit hydrophytic vegetation, hydric soils, and wetland hydrology.

Field surveys for wetlands and potential waters of the U.S. were conducted along the Middle Bald Mountain access road and tower site October 2012 by AECOM field staff. Field reconnaissance surveys were conducted by AECOM field staff along the Killpecker site proposed access road and tower site in November 2013. Along the proposed power line, proper functioning condition surveys were conducted by BMEC in September 2007. Within the project area, three perennial streams, and multiple intermittent and ephemeral channels were identified. Most of the identified streams would be crossed by the proposed power line. No riparian areas or waterbodies are located along the proposed access roads or at the proposed tower sites; however, the originally-proposed access road to the Middle Bald Mountain site crossed a wetland (fen), so that access road was relocated. That new proposed access route is relocated away from the wetland (fen), so project activities would avoid any wetland disturbance.

Impacts

The acres of disturbance associated with each alternative are identified in Section 3.0. Impacts to vegetation resources from the Project were identified based on the locations of the resources in relation to the proposed surface disturbance areas. To determine acres of vegetation disturbed by the Project, the known locations of proposed surface disturbances have been overlain on the vegetation layer to determine the amount of acreage disturbed for each vegetation type. The power line ROW would parallel County Road 162 and NFSRs on either side of the road with the exact locations for wood poles to be determined based on topography and engineering considerations. The exact centerline for the power lines and access roads, and associated temporary work areas would be determined during the design phase for of the proposed Project. The impacts to vegetation were estimated by multiplying the percent of the analysis area impacted by new surface disturbance-related activities by the acreage of each vegetation type within the analysis area for the anticipated extent of disturbance for construction and operation activities outlined in Section 3.0. Design criteria were taken into account in determining acres of potential impact.

Under the Proposed Action, impacts would include surface-disturbance activities associated with construction and operation of the communication site, access road, and power line (**Table 7**).

Construction of the communication site would temporarily disturb approximately 0.5 acres of grassland and barren cover types; permanent footprints for communication facility components would occupy < 0.1 acre of the same cover types. Prior to construction of the access road from NFSR 517 through the band of trees to the west of the summit, presence of notable old-growth conifer trees would be documented. Such trees would be avoided when practicable. Assuming none are in the proposed access road disturbance area, the access road would temporarily disturb approximately 2.1 acres of forested cover types including lodgepole pine and subalpine fir/Engelmann spruce. The permanent footprint for the access road would disturb approximately 0.4 acres of the same vegetation types.

Because vegetation clearing for ROW maintenance would occur within the established ROW for the life of the Project, temporary and long-term disturbance areas for the power line are the same.

Approximately 31 acres would be disturbed for initial ROW clearing, installation of the overhead power line, and ongoing ROW maintenance. Roughly half of this acreage (15.2 acres) would be associated with the lodgepole pine cover type. Other vegetation cover types to be affected include subalpine fir/Engelmann spruce (7.1 acres), grassland (4.3 acres), mixed conifer forest (2.4 acres), ponderosa pine (0.9 acre), aspen (0.7 acres), shrub-willow (0.2 acres), and mountain shrub (<0.1 acres).

Under the Preferred Alternative, impacts would include surface-disturbance activities associated with construction and operation of the communication site, access road, and power line (**Table 8**).

Construction of the communication site would temporarily disturb approximately 0.3 acres of the subalpine fir/Engelmann spruce cover type; permanent footprints for communication facility components would occupy < 0.1 acre of the same cover types. Construction of the access road from NFSR 300 to the edge of the trees below the summit would temporarily disturb up to 2.4 acres of forested cover types including lodgepole pine, subalpine fir/Engelmann spruce, and mixed conifer forest; the permanent footprint for the access road would occupy approximately 0.4 acres of the same cover types.

Because vegetation clearing for ROW maintenance would occur within the established ROW for the life of the Project, temporary and long-term disturbance areas for the power line are the same.

Approximately 28.1 acres would be disturbed for initial ROW clearing, installation of the overhead power line, and ongoing ROW maintenance. Roughly half of this acreage (13.7 acres) would be associated with the lodgepole pine cover type. Other vegetation cover types to be affected include subalpine fir/Engelmann spruce (6.4 acres), grassland (4.2 acres), mixed conifer forest (1.9 acres), ponderosa pine (0.9 acre), aspen (0.7 acres), shrub-willow (0.2 acres), and mountain shrub (<0.1 acres). Impacts associated with construction activities would be greatest in the forested communities for the communication site, access road, and power line.

Table 7 Impacts to Vegetation Cover within the Middle Bald Mountain Area Analysis Site

Components	Middle Bald Mountain Alternative				
	Proposed Tower Site ¹	Cable Tray ²	Access Road ³	Power Line ⁴	
				ROW	Facilities
Temporary Acres ⁵					
Lodgepole pine	-	-	1	15.2	<0.1
Subalpine fir / Engelmann spruce	-	-	1.1	7.1	<0.1
Grassland	0.3	0.1	<0.1	4.3	<0.1
Forested (Mixed Conifer)	<0.1	-	-	2.4	<0.1
Barren	0.1	0.2	-	-	-
Shrub - Willow	-	-	-	0.2	<0.1
Aspen	-	-	-	0.7	<0.1
Ponderosa Pine	-	-	-	0.9	<0.1
Mountain Shrub	-	-	-	<0.1	<0.1
Permanent					
Lodgepole pine	-	-	0.2	15.3	<0.1
Subalpine fir / Engelmann spruce	-	-	0.2	7.1	<0.1
Grassland	<0.1	<0.1	-	-	<0.1
Forested (Mixed Conifer)	-	-	-	2.4	<0.1
Barren	-	<0.1	-	-	-
Shrub - Willow	-	-	-	0.2	<0.1
Aspen	-	-	-	0.7	<0.1
Ponderosa Pine	-	-	-	0.9	<0.1
Mountain Shrub	-	-	-	<0.1	<0.1

¹ The proposed tower site includes the building site, generator, and the proposed tower.

² Acreage for the cable tray includes the cable anchors

³ The UG Distribution line that runs from FS 300 to the proposed tower site parallels the access road from FS 300 to the proposed tower site. The acres of surface disturbance associated with the UG Distribution line are included in the acres for the access road.

⁴ The proposed power line facilities include 260 poles, turnouts, staging areas, and vegetation clearing along the ROW. The facilities will occur within the ROW. The acreages associated with the facilities are not included with the ROW acreage. Vegetation clearing will occur for construction and operations within the entire 20-foot ROW. The power line will be located on either side of FS300 depending on topography.

⁵ Discrepancies in totals are due to rounding.

Table 8 Impacts to Vegetation Cover within the Killpecker Area Analysis Site

Components Components	Killpecker Alternative			
	Proposed Tower Site ¹	Access Road ³	Power Line ⁴	
			ROW	Facilities
Temporary Acres ⁵				
Lodgepole pine	-	0.3	13.7	<0.1
Subalpine fir / Engelmann spruce	0.3	2	6.4	<0.1
Grassland	-	-	4.2	<0.1
Forested (Mixed Conifer)	-	<0.1	1.9	<0.1
Barren	-	-	-	-
Shrub - Willow	-	-	0.2	<0.1
Aspen	-	-	0.7	<0.1
Ponderosa Pine	-	-	0.9	<0.1
Mountain Shrub	-	-	<0.1	<0.1
Permanent				
Lodgepole pine	-	<0.1	13.8	<0.1
Subalpine fir / Engelmann spruce	<0.1	0.3	6.4	<0.1
Grassland	-	-	4.2	<0.1
Forested (Mixed Conifer)	-	<0.1	1.9	<0.1
Barren	-	-	-	-
Shrub - Willow	-	-	0.2	<0.1
Aspen	-	-	0.7	<0.1
Ponderosa Pine	-	-	0.9	<0.1
Mountain Shrub	-	-	<0.1	<0.1

¹ The proposed tower site includes the building site, generator, and the proposed tower.

² Acreage for the cable tray includes the cable anchors

³ The UG Distribution line that runs from FS 300 to the proposed tower site parallels the access road from FS 300 to the proposed tower site. The acres of surface disturbance associated with the UG Distribution line are included in the acres for the access road.

⁴ The proposed power line facilities include 235 poles, turnouts, staging areas, and vegetation clearing along the ROW. The facilities will occur within the ROW. The acreages associated with the facilities are not included in the ROW acreage. Vegetation clearing will occur for construction and operations within the entire 20-foot ROW. The power line will be located on either side of FS300 depending on topography.

⁵ Discrepancies in totals are due to rounding.

Habitat Effectiveness: Effective habitat is considered to be mostly undisturbed habitat which is buffered from regularly used roads and trails (both motorized and non-motorized travel – Forest Plan 1997).

The proposed Project is located within the Deadman geographic area. From the Forest Plan, habitat effectiveness is at 56 percent for this geographic area. New permanent road construction is proposed within effective habitat. However, the Killpecker access road would be gated and prohibited from public use. Based on this factor, habitat effectiveness levels would not be reduced from existing conditions.

CUMULATIVE EFFECTS

Cumulative effects to federally listed threatened or endangered species or Forest Service sensitive species (TES) may occur from a proposed action when effects from the proposed action are combined with impacts from past, present, and reasonably foreseeable future actions, whether those actions are federal or non-federal. The cumulative effects study area (CESA) for this cumulative effect assessment is based on the location of past and future timber and fuel projects in the project vicinity (**Figure 5** and **Figure 6**), an area of approximately 24,450 acres. Approximately 5,000 acres of past timber and fuels projects have occurred within the CESA. Additionally, within the Elkhorn Planning area, an additional 2,200 acres are planned for vegetation treatments. Other past, present, and reasonably foreseeable future actions within the CESA that can contribute to cumulative impacts on sensitive species and their habitats include road construction and maintenance, residential/commercial development on adjacent private lands, and recreational activities on both public and private lands.

Figure 5 Past Timber and Fuels Projects

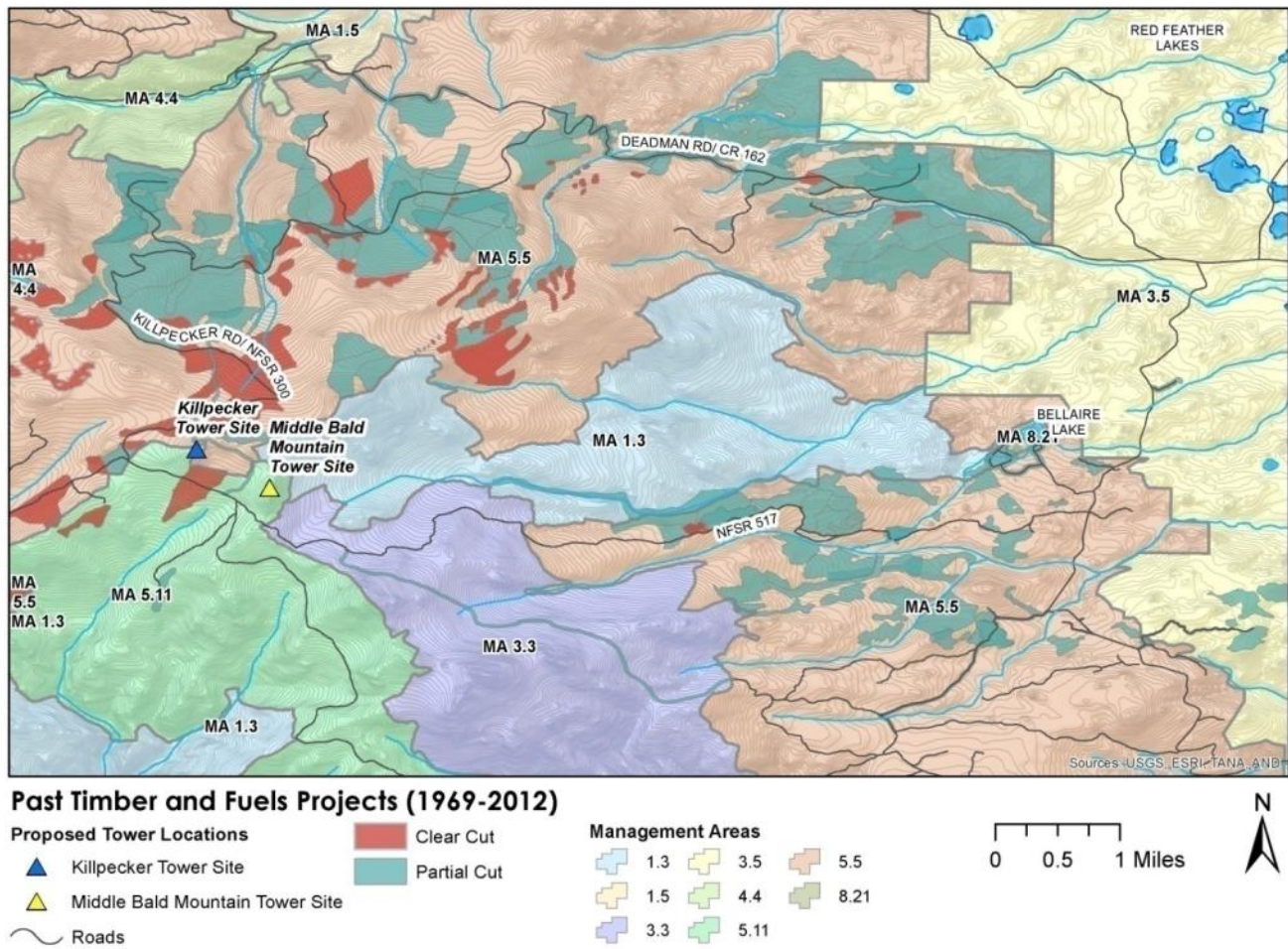
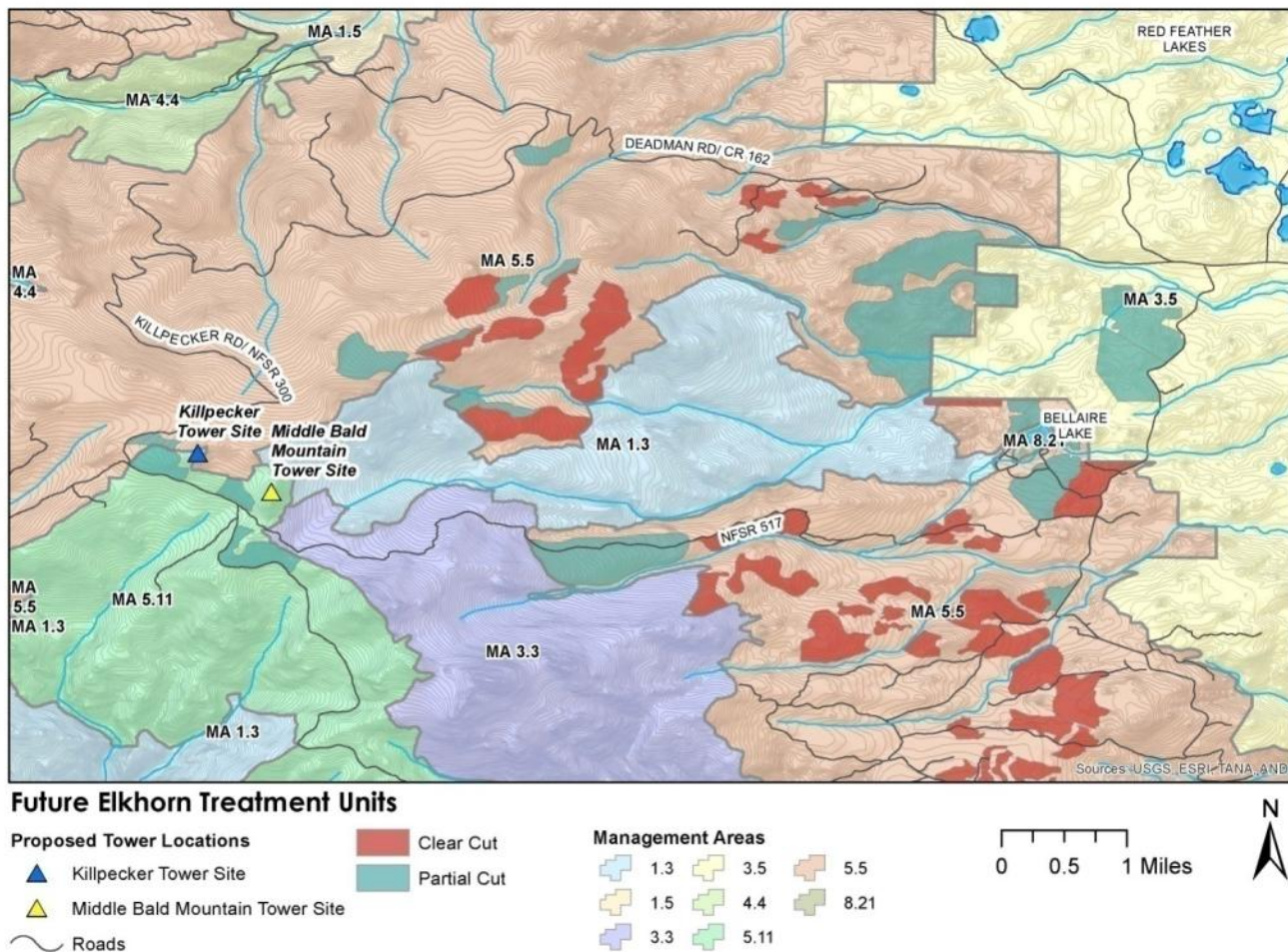


Figure 6 Future Elkhorn Treatment Units



SPECIES INFORMATION

Canada Lynx

Lynx Canadensis

Natural History and Potential Presence within the Project Area

The Canada lynx is considered critically imperiled in Colorado (NatureServe 2013). For a comprehensive discussion of lynx natural history, see Ruediger et al. (2000) and Ruggiero et al. (2000). In summary, denning habitat includes forested areas, primarily high elevation spruce-fir, which provide adequate cover and habitat for its primary prey, the snowshoe hare (*Lepus americanus*). Appropriate habitat usually includes a dense understory of thickets and windfalls, and requires minimal human disturbance. Dens typically occur in hollow trees, under stumps, rootwads, or downed logs, within jack-strawed windthrow, or in thick brush. Den sites tend to be in mature or old growth stands with a high density of logs (NatureServe 2004; Ruediger et al. 2000; Ruggiero et al. 2000). Foraging areas include early successional forests with a high density of stems and branches that protrude above the snow. Older forests with understories of conifers and shrubs also provide important foraging habitat, especially for alternative prey species including red squirrels, grouse, and voles. The primary limiting factor for

lynx populations is the abundance of snowshoe hare and alternative prey species, which in turn is limited by availability of winter habitat (NatureServe 2004; Ruggiero et al. 2000, Ruediger et al. 2000).

Lynx habitat can generally be described as moist boreal forests dominated by conifer trees, primarily species of spruce (*Picea* spp.) and fir (*Abies* spp.), that have cold, snowy winters and a high-density snowshoe hare prey base (USFWS 2014). In the contiguous United States, the boreal forest type transitions to subalpine forest in the west. In mountainous areas, the boreal forests that lynx use are characterized by scattered moist forest types with high hare densities in a matrix of other habitats (e.g., hardwoods, dry forest, non-forest) with low hare densities. In these areas, lynx incorporate the matrix habitat (non-boreal forest habitat elements) into their home ranges and use it for traveling between patches of boreal forest that support high hare densities where most foraging occurs. In Colorado, the lynx is found in dense subalpine forest and willow-choked corridors along mountain streams and avalanche chutes (CPW 2014).

Individual lynx maintain large home ranges generally between 12 to 83 square miles (USFWS 2014). Lynx are active throughout the year; their huge hind feet help them move across heavy snow. Lynx breed in late winter, and after a gestation period of about 9 weeks, females produce a litter of about 4 kittens in April or May (CPW 2014).

Native lynx historically occurred sparsely in mountainous areas above 9,000 feet elevation in the Park, Gore, San Juan, and La Plata mountains, and the White River Plateau. From 1999 through 2006, a total of 218 lynx were reintroduced by CDOW into the San Juan Mountains of southwestern Colorado. Reproduction has been documented with 42 dens and a total of 126 kittens located from 2003 through June 2009. No known dens were located in 2007 or 2008, but 5 dens with a total of 10 kittens were documented in 2009, and successful reproduction was documented again in 2010. All known den locations through 2009 were south of Interstate 70. In September 2010, CDOW stated that the lynx reintroduction effort has been successful, and projected that the population should be self-sustaining, based on documented demographic parameters of the reintroduced lynx population. As of summer 2010, DOW stated that all of their benchmarks for a successful lynx reintroduction had been met. Currently, there are no known resident lynx on the Canyon Lakes District. However, there have been radio-collared lynx detected by CDOW on multiple occasions within the Canyon Lakes District boundaries since the reintroduction project began, a lynx was photographed near Cameron Pass during winter 2009, and a few lynx are known to be resident within the Sulphur Ranger District boundaries.

The majority of the project area with the exception of 14 acres along Deadman Road is located within the Redfeather Lynx Analysis Unit (LAU). Additionally, the Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARNF) lynx habitat data identifies anything above 9,000 feet elevation as potential lynx habitat, and that elevation defines the boundaries of the LAUs. Therefore, suitable lynx habitat is present within the mesic lodgepole pine and mixed lodgepole/spruce-fir forest types in the upper elevations of the majority of the power line corridor of the project area (personal communication with D. Oblerag, February 19, 2014).

This species has not been documented in the project area. Based on the natural history of the species, the lynx has the potential to utilize all habitats impacted by the Project. Approximately 35 acres of the Redfeather Lynx LAU would be impacted. From ARNF GIS data (**Table 9**), the Redfeather LAU contains 106,960 acres, of which 100,190 acres are capable lynx habitat. The following table shows acres by habitat type for the Redfeather LAU, including 82 percent identified as suitable habitat. No lynx critical habitat has been designated by USFWS on the ARNF or in Colorado, and there are no key lynx linkages within the analysis area. The impacts related to the removal of suitable lynx habitat meet the direction for allowable Human Use projects in the Southern Rockies Lynx Amendment (SRLA) Implementation Guide.

Table 9 Redfeather LAU Acres and Percent of Capable Habitat

	Acres	Percent of Capable Habitat
Capable Habitat	100,190	100
Suitable Habitat	82,417	82
Winter Forage (w/o denning)	44,435	44
Denning (also winter forage)	22,355	22
Other Lynx Habitat	15,626	16
Unsuitable	17,773	18
Non Habitat	6,336	N/A
No Data	435	N/A
Total LAU	106,960	

In October 2008, SRLA Record of Decision (ROD) was published (USDA Forest Service 2008), which amended Forest Plans and provided management direction for all Region 2 forests with lynx habitat, including the ARNF. In 2009, the interagency Southern Rockies Lynx Amendment Implementation Guide was published, which provides clarification, explanation, and direction on implementing the SRLA (USDA Forest Service and USDI Fish and Wildlife Service 2009). Guidelines for Human Use Projects within the SRLA that apply to the project include those associated with disturbances to lynx habitat connectivity and increase in snow compaction due to the construction and operation of roads (SRLA TAB 4a – Objective HU01, Objective HU05, and Guideline HUG12). However, as described above in the description of alternatives (Section III) and existing conditions for the project are (Section IX), the loss of suitable habitat is minimal, the proposed distribution lines are mostly planned along existing roads, and the operation of the proposed access roads will include minimal over-the-snow travel. Therefore, the proposed project conforms with Human Uses objectives and guidelines from the SRLA Implementation Guide.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable lynx habitat is present within or adjacent to the proposed project area. Under this alternative, there would be temporary impacts to approximately 35 acres and permanent impacts to 32 acres of suitable habitat. If present during construction and operation of the Project, direct impacts would include possible collisions with vehicles, the loss and fragmentation of suitable habitat, and an increased noise and human presence. Indirect impacts could result from increased recreational use of the area and avoidance of the project area.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 32 acres and permanent impacts to 30 acres of suitable habitat; a minor difference of approximately 3 and 2 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no effect for lynx.

Alternative 2 – Under this alternative, the Project “may affect but is not likely to adversely affect” the Canada lynx. This determination is based on the small amount of suitable forested habitat within the project area that would be impacted in relation to the availability of currently suitable habitat in the Redfeather LAU (82,417 acres).

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Because designated critical habitat for lynx is not present on the ARNF or in Colorado, the proposed Project will have “no effect” to lynx critical habitat.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 30 or 32 acres of lynx habitat out of more than 82,000 currently suitable acres in the LAU. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the Canada lynx.

North American Wolverine

Gulo gulo

Natural History and Potential Presence within the Project Area

The North American Wolverine became a federal candidate species December 14, 2010. On February 1, 2013, the U.S. Fish and Wildlife Service announced a proposal to list the wolverine as a threatened species under the Endangered Species Act.

Considered critically imperiled in Colorado, the North American wolverine occurs over a large range in northern Canada and Alaska, where populations are stable. The wolverine has been extirpated from most of its historic range in the contiguous 48 states, but populations are present in Washington, Idaho, Montana, and Wyoming. Recently there are signs of semi-recovery in select western states, including those above. In Colorado, records from the 19th century indicate that populations were never very high and it is unlikely that wolverines were common in Colorado and current population levels are not self-sustaining (Ruggiero et al. 1994). Relatively recent CDOW surveys failed to find any definitive wolverine signs in the state (Armstrong et al. 2011). The first confirmed wolverine sighting in Colorado since 1919 was recorded in June of 2009 in northern Colorado, just south of the Wyoming state line. The wolverine was observed at 10,500 feet amsl and is believed to be a part of the Greater Yellowstone Wolverine Program. This individual (M56) remains in northern Colorado (Inman et al. 2009).

Wolverines are solitary, wide-ranging, and exist in low densities in large wilderness areas. Wolverines have historically had one of the lowest densities of any carnivore in North America (Armstrong et al. 2011). Suitable habitat includes alpine and arctic tundra and boreal and mountain forests (primarily coniferous). Wolverines use habitats with snow on the ground in the winter. Riparian areas also may be important winter habitat. In Colorado, historical and current reports show nearly all wolverines are from higher elevations, in areas with heavy timber. However, they also may hunt in open areas (CDOW 2009). When inactive, wolverines occupy dens in caves, rock crevices, under fallen trees, or in thickets.

Wolverines remain solitary most of the year except for a short period during breeding season (Fitzgerald et al. 1994). They typically breed from April to October, and young are usually born in February or March. Litters usually are 3 to 4 young, but range from 1 to 6. Juveniles leave the mother the following fall and are sexually mature around 3-4 years of age depending on location and population size (NatureServe 2005).

Wolverines are omnivorous, feeding on small mammals, birds, fish, carrion, and plant material. In winter the diet is mostly mammalian prey and carrion, with more diversity at other times of the year (Fitzgerald et al. 1994; Ruggiero et al. 1994).

One historic occurrence from 1973 has been recorded within the vicinity of the project area (CNHP 2007). Suitable habitat exists within the project area. Based on the natural history of the species, the wolverine has the potential to utilize all habitats impacted by the Project. Designated critical habitat has not been proposed for wolverine.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable wolverine habitat is present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 35 acres and permanent impacts to 32 acres of suitable habitat. If present during construction and operation of the Project, direct impacts would include possible collisions with vehicles, the loss and fragmentation of suitable habitat, and an increased noise and human presence. Indirect impacts could result from increased recreational use of the area and avoidance of the project area.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 32 acres and permanent impacts to 30 acres of suitable habitat; a minor difference of approximately 3 and 2 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for wolverine.

Alternative 2 – Under this alternative, the Project would have “no effect” on the wolverine. The project would result in a change of forest habitat of 32 acres along the powerline and access roads corridor to herbaceous/shrub habitat, but abundant wolverine habitat would remain around the project area. This minor habitat change would be inconsequential within a wolverine home range. .

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

There is no potential for effects to designated critical habitat for wolverine because critical habitat has not been proposed.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from

timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 30 or 32 acres of wolverine habitat. Wolverines utilize similar habitat to that utilized by Canada lynx, which includes over 100,000 acres in the Redfeather LAU. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the wolverine.

SUMMARY OF EFFECTS OF THE ALTERNATIVES FOR FEDERALLY LISTED SPECIES

Common Name	Scientific Name	Status	Alt 1	Alt 2	Alt 3
Canada Lynx	<i>Lynx canadensis</i>	Threatened	No Effect	NLAA	NLAA
North American Wolverine	<i>Gulo gulo</i>	Proposed Threatened	No Effect	No Effect	No Effect

NLAA – May Affect, but Not Likely to Adversely Affect.

SENSITIVE SPECIES INFORMATION

MAMMALS

Gray wolf

Canis lupus

Natural History and Potential Presence within the Project Area

Once distributed statewide, the wolf is presumed extirpated from Colorado (CPW 2014). Wolves occupy a wide range of habitats. Historically, wolves fed on the vast herds of bison, elk and deer, supplemented by rabbits, rodents and carrion (CPW 2014). Wolves in Colorado were systematically eradicated by shooting, trapping and poisoning due to livestock owner conflicts, with the last wolves documented in Colorado in the 1930s (CPW 2014).

Wolves in different social units, such as pairs versus packs, use different key habitat components (USFWS 1987). Wolves also may use different combinations of key habitat components or use them in different areas of their territory, or switch territories all together (USFWS 1987). The key components are a year-round abundance of ungulate prey and alternate prey, secluded and suitable denning and rendezvous sites, and sufficient space with low human disturbance (USFWS 1987). Wolf habitat requirements are highly related to those of their ungulate prey, which vary between regions (USFWS 1987).

Wolves den in burrows in banks where the female bears six to 10 pups in March after a 9-week gestation period (CPW 2014). The male provides food for the nursing mother (CPW 2014). A pair may have a hunting territory 10 square miles (CPW 2014).

Suitable habitat exists within the project area; however, no known den sites or individual occurrences of gray wolves have been documented within or adjacent to the project area. Based on the natural history of the species, the gray wolf has the potential to utilize all habitats impacted by the Project.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable wolf habitat is present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 35 acres and permanent impacts to 32 acres of suitable habitat. This minor amount of habitat change would have no impact for wolves because they utilize forested and non-forested habitats. Additionally, wolves are presumed extirpated from the project area, and occurrence of gray wolves within the project area would be limited to transient individuals at this time. If present during construction and operation of the Project, direct impacts would include possible collisions with vehicles, and an increased noise and human presence. Indirect impacts could result from increased recreational use of the area and avoidance of the project area.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 32 acres and permanent impacts to 30 acres of suitable habitat; a minor difference of approximately 3 and 2 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the gray wolf.

Alternative 2 – Under this alternative, the Project would have “no impact” on the gray wolf.” While suitable habitat would be changed within the project area by tree clearing for the powerline and access roads, this species is a generalist and the amount of available habitat surrounding the project area could be utilized. Additionally, this species is presumed extirpated from the project area and occurrence of this species is highly unlikely.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on these species and their habitats. Under all alternatives, no adverse effects or impacts are expected for the gray wolf. Consequently, there is no potential for adverse cumulative impacts to occur for this species from implementation of this Project.

American marten

Martes americana

Natural History and Potential Presence within the Project Area

Marten occur throughout Alaska, Canada, and the lower 48 states except for the Midwest and the South. In Colorado, marten occur in most areas of coniferous forest habitat in the high mountains (Armstrong et al. 2011). According to NatureServe Explorer (2012), marten populations are apparently secure.

Marten inhabit subalpine spruce-fir and lodgepole pine forests, alpine tundra, and occasionally montane forests. They prefer late-successional or mixed age stands with over 30 percent, and preferably 40 to 60 percent canopy cover. Marten den in tree cavities, logs, rocks, rock piles, and burrows, and

frequently rest on tree limbs during the day. Voles and mice may constitute over 60 to 88 percent of the marten diet. The species prefers interior forests and will avoid open areas more than 100 meters to 250 meters wide. Marten remain active year-round and rely upon downed logs, woody debris, brush piles, and root masses to access the environment under snowpack in search of food (Armstrong et al. 2011).

This species has not been documented within the project area, but suitable habitat exists. However, interior forest is not found within the project area. Based on the habitat description for this species, approximately 67 acres of suitable habitat exists within the project area.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable habitat is present within and adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 28 acres and permanent impacts to 26 acres of suitable habitat. If present during construction and operation of the Project, impacts to martens would include possible collisions with vehicles, loss of den sites due to tree and other ground disturbing and clearing activities, the loss and fragmentation of suitable habitat, and an increased noise and human presence. Indirect impacts could result from increased recreational use of the area and avoidance of the project area.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 26 acres and permanent impacts to 24 acres of suitable habitat; a minor difference of approximately 2 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for American marten.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the long term removal of a minor amount of suitable forested habitat within the project area. However, abundant suitable marten habitat would remain all around the project area corridor.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 30 or 32 acres of American marten habitat out of approximately 24,000 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the marten.

Natural History and Potential Presence within the Project Area

Considered imperiled in Colorado, pygmy shrews have relatively unknown status, trend, and distribution, other than historically documented occurrences in Grand, Gunnison, and Larimer counties (NatureServe Explorer 2012). The species is known from the boreal habitats of Alaska through Canada and into the Northern Rockies, the upper Midwest and the Appalachians in the U.S. (Beauvais and McCumber 2006). The pygmy shrew is relatively specialized within its range, occupying high-elevation, mesic coniferous forest with possible preference for late-seral stands and the edges between wet, lowland forest and dry, upland forest (USFS 2006). A specimen was collected in 1961 west of Fort Collins and another specimen was found near Rabbit Ears Pass (Armstrong et al. 2011). Until recently, all captures of this species in Colorado have occurred above 9,600 feet amsl (NDIS 2010). However, several pygmy shrews have been captured on the Routt and Arapaho-Roosevelt National Forests by Colorado Natural Heritage Program researchers during 2012 and 2013. Captures were in a variety of habitats between elevations of 8,300 to 10,120 feet, including lodgepole pine and spruce-fir forest (D. Oberlag, Canyon Lakes RD Wildlife Biologist, personal communication). The species has been found in subalpine forests, clear-cut and selectively logged forests, forest-meadow edges, boggy meadows, willow thickets, aspen-fir forests, and subalpine parklands. Pygmy shrews build runways under stumps, fallen logs, and litter (Armstrong et al. 2011; NatureServe Explorer 2012).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable habitat is present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 28 acres and permanent impacts to 26 acres of suitable habitat. Impacts to shrews could include the loss and fragmentation of suitable habitat, and increase in noise and human presence.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 26 acres and permanent impacts to 24 acres of suitable habitat; a minor difference of approximately of 2 acres for both temporary and permanent impacts.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for pygmy shrew.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the presence and disturbance of a small amount of suitable habitat within the project area as identified above. Abundant suitable habitat would remain all around the project area.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 28 or 26 acres of pygmy shrew habitat out of approximately 20,000 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the pygmy shrew.

Fringed myotis

Myotis thysanodes

Natural History and Potential Presence within the Project Area

The fringed myotis is found in western North America, occurring from southern British Columbia, Canada south through southern Mexico (Keinath 2004). It occurs west to the Pacific coast and east to the Rocky Mountains, with a potentially isolated population in the Black Hills of South Dakota, Wyoming, and Nebraska. Occurrences have been documented in 14 states (Arizona, California, Colorado, Idaho, Nebraska, New Mexico, Montana, Nevada, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming).

In Colorado, the fringed myotis is a species of coniferous woodlands and shrublands at elevations up to about 7,500 feet, though some occurrences have been documented at elevations higher than this. Over the species range, it has been found in hot desert scrubland, grassland, xeric woodland, sage-grass steppe, mesic old-growth forest, and multi-aged subalpine coniferous and mixed-deciduous forest. Xeric woodlands (ponderosa pine, oak, and pinyon-juniper) appear to be the most commonly used habitat type. Suitable tree roosting habitat consists of largely late-successional pine with high densities of snags in early to medium stages of decay (Keinath 2004). Where available, caves, buildings, underground mines, rock crevices in cliff faces and bridges are used for maternity and night roosts, while hibernation has only been documented in buildings and underground mines. Diets consist mainly of beetles and foraging usually occurs over vegetative canopies (Keinath 2004).

This species has not been documented within the project area, but suitable habitat exists. Based on the habitat description for this species, potential occurrence within the project area would be limited to roosting and foraging habitat along northeast portions of the distribution line. Hibernacula, and maternity sites are most common in abandoned buildings, caves, and mines, none of which are known to occur in the project area. This species also uses bridges and rock crevices as solitary day roosts and night roosts, and they may hibernate in crevices. They regularly roost under bark and inside tree hollows, particularly in ponderosa pine and Douglas-fir in medium stages of decay. This may represent the primary daytime roosting structure.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative):

Suitable habitat is present within or adjacent to the proposed project area. Under this alternative, there would be temporary and permanent impacts to approximately 3.6 acres of suitable habitat along the lower or first 1.5 miles of the powerline corridor. However, due to the narrow footprint of the powerline corridor, these impacts would be negligible. Foraging habitat for this species may be improved by the

expected increase in herbaceous and shrub vegetation along the cleared powerline corridor that typically occurs after stands are opened up to more sunlight, which may increase prey abundance. The tree clearing also would create more open forest conditions that are more conducive to bat foraging. If present during construction and operation of the project, direct impacts to this species could include direct disturbance of roosting individuals during the removal of forested areas. Other direct impacts could include the loss of suitable roosting habitat.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative):

The direct and indirect effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the fringed myotis.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the long term removal of a small amount (approximately 3.6 acres) of suitable forested roosting habitat within the project area.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact about 3.6 acres of fringed myotis habitat. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the fringed myotis.

Townsend’s big-eared bat

Corynorhinus townsendii

Natural History and Potential Presence within the Project Area

Considered Imperiled in Colorado (NatureServe 2005). The main portion of the species range occurs in the western half of the United States, extending northward across the Canadian border into central British Columbia, and southward into western and central Mexico (Schmidt 2003). In Colorado, it occurs over most of the western two-thirds of the state and extreme southeastern Colorado to elevations of about 9,500 feet (Fitzgerald et al. 1994). From the Colorado Natural Heritage Program database, occurrences of this species are not documented within the analysis area.

Throughout much of their known range, Townsend’s bats primarily occupy semidesert shrublands, pinyon-juniper woodlands, and open montane forests (Fitzgerald et al. 1994). In Colorado, Townsend’s have been found roosting during the summer in caves that range from 6,120 to 9,890 feet elevation, and it is surmised that they could occur in lodgepole and spruce-fir forests if suitable cave or cave-like roost sites are present (Gruver and Keinath 2006). Although it is associated with a wide variety of habitats, its distribution tends to be geomorphically determined and is strongly correlated with the availability of caves or cave-like roosting habitat (e.g., abandoned mines) (Gruver and Keinath 2006; Schmidt 2003). They also will use abandoned buildings and crevices on rock cliffs for refuge. Bats glean insects from

leaves and foraging mostly occurs over water, along the margins of vegetation, and over sagebrush (Fitzgerald et al. 1994).

Based on the habitat description for this species, potential occurrence within the project area would be limited to foraging habitat along portions of the distribution line. No caves or abandoned mines, which provide primary critical roosting habitat (maternity and hibernacula), are known within the project area. The conifer stands of ponderosa pine, mixed Douglas-fir/ponderosa, and lodgepole pine and the riparian areas along the perennial and intermittent streams do provide potential foraging habitat.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable habitat is present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be impacts to approximately 26 acres of suitable habitat along the power line corridor. However, due to the narrow footprint of the power line corridor, these impacts would be negligible. There are no known roosts, hibernacula, or maternity sites, or structures (e.g., caves or abandoned mines) that could provide such roosting habitat, within the project area, so there would be little chance for direct effects to these habitat features from project activities. Additionally, based on the design criteria for the Project (Section V), there would be no disturbance to surface waters as a result of distribution line construction. Less than 0.1 acre of riparian willow habitat would be impacted by distribution line construction. Foraging habitat for this species may be improved by the expected increase in herbaceous and shrub vegetation along the cleared powerline corridor that typically occurs after stands are opened up to more sunlight, which may increase prey abundance. The tree clearing also would create more open forest conditions that are more conducive to bat foraging.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative):

The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be impacts to approximately 23 acres; a minor difference of approximately of 3 acres.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the Townsend's big-eared bat.

Alternative 2 – Based on the impact analysis, the Project would have "No Impact" on the Townsend's big-eared bat because no impact to roosting structures would occur and foraging habitat may be slightly improved.

Alternative 3 – The determination of effects and rationale under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

Under all alternatives, no adverse effects or impacts are expected for Townsends' big-eared bat. Consequently, there is no potential for adverse cumulative impacts to occur for this species from implementation of this Project.

Natural History and Potential Presence within the Project Area

According to CNHP conservation status rankings, the hoary bat is considered “demonstrably widespread, abundant, and secure” in Colorado. It is the most widespread of all North American bats, occurring throughout North America, except above the limits of trees in Canada. In Colorado, the hoary bat probably occurs statewide from the plains to timberline (Ellison et al. 2003; Fitzgerald et al. 1994). In recent years, hoary bats have been trapped by bat researchers on the Canyon Lakes Ranger District in at least six locations at elevations between approximately 5,260 to 8,600 feet, although none of these detections are from within the project area.

Hoary bats are highly associated with forested habitats in the West. They are solitary and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, 3 to 12 meters above the ground. Roosts are usually at the edge of a clearing. In Colorado, the species is frequently taken in ponderosa pine forests where large deciduous trees are lacking (Ellison et al. 2003; Fitzgerald et al. 1994). The species never seems to be abundant in any area and most collections are of single individuals. They reportedly have strong preferences for moths, but also are known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps. Loss of roosting habitat due to timber harvest is likely the biggest threat to this species (Ellison et al. 2003; Fitzgerald et al. 1994).

Based on the habitat description for this species, potential occurrence within the project area would be limited to roosting and foraging habitat along portions of the distribution line.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Potentially suitable habitat is thought to be present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be impacts to approximately 26 acres of suitable habitat along the power line corridor. However, due to the narrow footprint of the power line corridor, these impacts would be negligible. If present during construction and operation of the Project, direct impacts to this species could include direct loss of roosting individuals during the removal of forested areas. However, because this species roosts in the foliage at the ends of branches, it is likely that bats roosting on a tree would be able to fly away before potential injury from tree felling occurred. Minor impacts of tree removal for the power line and access road clearing may include removal of potential roosting trees.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative):

Direct and indirect effects under this alternative would be the same as those for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the hoary bat.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the long term removal of 26 acres of suitable forested roosting habitat within the project area. However, abundant roosting habitat would remain all around the project area corridor.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact about 26 acres of hoary bat habitat. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for hoary bat.

BIRDS

Northern goshawk

Accipiter gentilis

Natural History and Potential Presence within the Project Area

Considered vulnerable in Colorado, the northern goshawk occurs throughout North America and circumpolar through Europe and Asia (NatureServe Explorer 2012). According to NatureServe Explorer (2012) and Kennedy (2003), trends are difficult to determine due to the lack of quantitative data and because of biases inherent in the various methods used to track avian populations. Christmas Bird Count (CBC) data (1959-1988), North American Breeding Bird Survey (BBS) data (1966-1996), and counts of migrants in the eastern U.S. (1972-1987) do not indicate any changes in population size.

Northern goshawks occur at elevations of 7,500 to 11,000 feet amsl (Kennedy 2003; NatureServe Explorer 2012) and 64 percent of BBS observations occurred in coniferous forests. The species inhabits mature forests of various cover types including aspen, lodgepole, ponderosa pine, and spruce-fir. Northern goshawks feed primarily on birds of small to medium size, as well as grouse and small mammals such as rodents, and hares. They may use marshes, meadows, and riparian zones for foraging (Kennedy 2003; NatureServe Explorer 2012). Regardless of the cover type, northern goshawks require large blocks of forest for nesting and foraging. They tend to select nest trees on shallow slopes, flat benches in steep country, and fluvial pans. Nest sites are often associated with small (<1 acre) openings (Barrett 1998). According to Hoover and Wills (1987), goshawks may utilize all structural stages of spruce-fir, lodgepole pine, Douglas-fir, and aspen habitats for foraging year-round.

No goshawk nest sites or individuals were identified during the surveys conducted for the project area in 2007 (BMEC).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable habitat is present within and adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 28 acres and permanent impacts to 26 acres of suitable habitat. If present during construction and operation of the Project, direct impacts to this species could include direct loss of nest sites; and collision and electrocution as a result

of the operation of distribution lines. Collision and electrocution potential would be reduced by implementing environmental protection measures from the Suggested Practices for Protection of Raptors on Power Lines (APLIC 2006). The probability of electrocution for this forest raptor is unlikely because they typically would perch in trees within the forest canopy, not on open powerlines and poles. If goshawk nest sites are found within or adjacent to the distribution line corridor prior to construction, the nest would be buffered by 0.5 mile until the chicks have fledged as directed by CDOW guidelines (CDOW 2008).

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 26 acres and permanent impacts to 24 acres of suitable habitat; a minor difference of approximately 2 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the northern goshawk.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the long-term removal of 24 acres of suitable forested nesting and foraging habitat within the project area and the potential for collision and electrocution impacts from the distribution lines. Abundant goshawk nesting and foraging habitat would remain adjacent to the project corridor.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 24 or 26 acres of habitat out of approximately 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the goshawk.

Flammulated Owl

Otis flammeolus

Natural History and Potential Presence within the Project Area

Apparently secure in Colorado (NatureServe 2004), the flammulated owl is now thought to occur more widely than previously thought. Statewide levels of flammulated owls are estimated at between 1,807 and 5,009 breeding pairs (CNHP 2002). The owls are present in the ponderosa pine and Douglas-fir forests of the ARNF (Hayward and Verner 1994) and confirmed summer breeding does occur in Larimer County (Andrews & Righter 1992). Flammulated owls also have been detected in several fuels reduction analysis areas on the District, and this owl appears to be relatively common on the District within mature ponderosa pine and mixed conifer stands.

These owls occur regularly from 6,000 to 10,000 feet elevation and prefer old growth or mature ponderosa pine. Key habitat features seem to be the presence of larger trees and snags, scattered clusters of shrubs or saplings, clearings, and a high abundance of nocturnal arthropod prey (Colorado Partners in Flight 2002). Moths, beetles, grasshoppers, crickets, and caterpillars also are food items. These birds arrive in Colorado in late April to early May and lay 2 to 3 eggs at the end of May and June. Young hatch in June and early July, and most young fledge by the end of July. Most owls migrate from Colorado by early October.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable habitat is present within or adjacent to the proposed project area along the lower portion of the Deadman Road area. Based on the impacts discussed for vegetation above, under this alternative there would be impacts to approximately 3 acres of suitable habitat. If present during construction and operation of the Project, direct impacts to this species could include direct loss of nest sites, forest habitat removal, and collision as a result of the operation of distribution lines. Collision potential would be reduced by implementing environmental protection measures from the Suggested Practices for Protection of Raptors on Power Lines (APLIC 2006). If nest sites are found within the distribution line corridor prior to construction, the nest would be buffered by 0.25 mile until the chicks have fledged.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the flammulated owl.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the long term removal of approximately only 3 acres of suitable forested nesting habitat within the project area and the potential for collision impacts from the distribution lines.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 3 acres of habitat out of nearly 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the flammulated owl.

Boreal Owl

Aegolius funereus

Natural History and Potential Presence within the Project Area

Considered imperiled in Colorado, boreal owls occupy a circumpolar distribution in northern hemisphere boreal forests. In North America, boreal forests in Colorado and northern New Mexico delineate the southernmost extent of their distribution. Although boreal owls are considered globally secure, their trend is unknown due to unreliable population estimates and nomadism caused by fluctuations in prey base abundance and distribution (NatureServe Explorer 2012). Boreal owls appear to be distributed in Colorado between 9,200 and 10,400 feet amsl (Hayward and Verner 1994).

In Colorado, boreal owls utilize late-successional, multi-layered habitats of spruce-fir and lodgepole pine interspersed with meadows. These owls also may be found in aspen and mixed conifer stands. Boreal owls are secondary cavity nesters, usually occupying cavities excavated by woodpeckers. Nest cavities are commonly found in snags with a diameter of at least 10 inches and may be used in consecutive years.

Roosting studies in Canada, Colorado, and Idaho indicate that boreal owls roost at different sites throughout their home range. In summer, thermal stress appears to drive selection of cool roost sites with high canopy cover, larger basal area, and higher tree density; whereas, in winter, boreal owls were not thermally stressed and therefore may use wider diversity of roost components (Hayward and Verner 1994). Average home ranges are about 2,600 acres in the summer and 3,700 acres in the winter (Hayward and Verner 1994; NatureServe Explorer 2012).

Boreal owl predators include marten, red squirrels, and great-horned owls. Major prey species for boreal owls include various voles, deer mice, and shrews, as well as a variety of forest birds and insects.

Suitable habitat has been identified within the study area. Owl call surveys conducted on August 16 and October 2, 2007, yielded no responses from owls (BMEC 2012). However, it should be noted that the timing of the owl surveys was not optimal; they are best conducted in late winter, spring and early summer.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Surveys in the project area did not locate any nest sites or individual boreal owls; however, suitable habitat is present within or adjacent to the proposed project area. If present during construction and operation of the Project, direct impacts to this species could include direct loss of nest sites; removal of approximately 29 acres of nesting and foraging habitat, and collision as a result of the operation of distribution lines. Collision potential would be low and would be reduced by implementing environmental protection measures from the Suggested Practices for Protection of Raptors on Power Lines (APLIC 2006). If a boreal owl nest site is found within the distribution line corridor prior to construction, the nest would be buffered until the chicks have fledged as directed by USFS guidelines.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be impacts to approximately 26 acres of suitable nesting and foraging habitat; a minor difference of approximately 3 acres.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the boreal owl.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This

determination is based on the long term removal of 29 acres of suitable forested nesting and foraging habitat within the project area and the potential for collision impacts from the distribution lines. However, abundant boreal owl habitat would remain adjacent to the project corridor.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would impact 26 or 29 acres of habitat out of nearly 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the boreal owl.

Lewis' woodpecker

Melanerpes lewis

Natural History and Potential Presence within the Project Area

Apparently secure in Colorado (Nature Serve 2005), the Lewis' woodpecker is strictly a species of western North America, breeding from Colorado west to the Pacific, and from Southern British Columbia to Arizona and New Mexico. In Colorado, they have changed their range as man has changed the landscape. Prior to 1910, they did not breed east of the foothills and after 1910 they began colonizing eastward along the plains of the Arkansas River. The expansion of the range is probably accredited to the maturation of cottonwoods and the availability of corn, which supplements the primary diet of flies. Currently, north of the San Juan's, they maintain breeding areas up to Grand Junction, in the Black Forest northeast of Colorado Springs, and along the Front Range from Denver to Wyoming (Kingery 1998). Although Larimer County is the northeast limit to their breeding range, confirmed breeding has occurred there. The global trend indicates a decline. Based on Breeding Bird Surveys and Christmas Count bird survey data, overall populations may have declined by approximately 60 percent (NatureServe 2005). Historic occurrences of this species are documented north of the Cherokee Park Road and west of Estes Park. Additionally, a single adult was observed along the Cherokee Park Road on July 9, 2009. A record from the CNHP database also shows a Lewis' woodpecker detection in 1998 about 2 miles south of the Big Thompson Canyon.

This species distribution closely matches that of ponderosa pine in the western U.S. (Abele et al. 2004). Breeding occurs most often in open forests or woodlands including park-like stands of ponderosa pine, riparian cottonwoods, and burned or logged conifer forest. Because this species specializes in fly-catching, Lewis' woodpeckers require open habitats for foraging. Although they specialize in catching flies, they also eat grasshoppers and other emergent insects. They prefer open pine forests, burnt-over areas with abundant snags, and riparian woodlands. Old, decadent trees with soft wood or natural cavities are preferred for nest sites. In North America, they are closely associated with open ponderosa pine. Breeding begins in mid-April, young are on the nest around mid-June and have usually fledged by mid-August. Adults become extremely agitated when danger approaches and will desert the nest if observed for too long (Abele et al. 2004; Kingery 1998).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur for Lewis' woodpecker.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Less than one acre of potentially suitable nesting and foraging habitat is present within or adjacent to the proposed project area along the lower Deadman road. There is a low likelihood of occurrence of this species in this very small portion of the project area due to the surrounding dense forest conditions that do not provide suitable habitat and because of the quite limited amount of open mature ponderosa pine habitat present. If present during construction and operation of the Project, potential direct impacts to the Lewis' woodpecker could occur from loss of nests during tree removal.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the Lewis' woodpecker.

Alternative 2 – Based on the impact analysis, the Project would have "No Impact" on the Lewis' woodpecker due to the very small amount of potential nest habitat impacted and very low likelihood of this species' occurrence.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact less than one acre of habitat. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for Lewis' woodpecker.

Olive-sided flycatcher

Contopus borealis

Natural History and Potential Presence within the Project Area

Olive-sided flycatcher breeding habitat occurs throughout the U.S. and Canada. Non-breeding territory occurs in central and South America as far south as Peru and Brazil, associated with the Andes Mountains and the Amazon Basin. Causes of olive-sided flycatcher decline are not well known but may be due to habitat changes in the breeding range and/or in migration and wintering areas. North American Breeding Bird Survey (BBS) data indicate declines since 1966 across much of North America and overall decline of 68 percent (3.3 percent/year) from 1966 to 2000 and 49 percent (3.3 percent/year) from 1980 to 2000 (NatureServe 2005). In Colorado, olive-sided flycatchers breed in coniferous forest habitat from 7,000 feet to 11,000 feet (Kingery 1998). In Larimer County, olive-sided flycatchers are considered rare to uncommon in the lower mountains and foothills.

Found in forested habitats, snags and the presence of conifers appear to be the two most important components of olive-sided flycatcher habitat (Kingery 1998). In Region 2, olive-sided flycatchers are more commonly found at higher elevations in spruce/fir forests, but they also can be found in aspen/mixed coniferous, ponderosa pine, riparian, and occasionally pinyon/juniper forests (Andrews and Righter 1992). Many structural stages of forest may be used if large snags are present for perching and foraging. Their diet is made up almost entirely of flying insects, and this bird has a special fondness for wild honeybees and other Hymenoptera. These flycatchers breed in old-growth coniferous forest over most of their range, including Colorado. Nests are placed most often in conifers on horizontal limbs from 5 feet to 30 feet from the ground. Olive-sided flycatchers will use openings, old burns or clear-cuts for foraging habitat, as long as snags are present. BBA surveys found 84 percent of olive-sided flycatcher occurrences in coniferous forests (Kingery 1998).

As detailed above, approximately 4 acres total of old-growth inventoried polygons overlap the project area. Additionally, there are a total of 2 acres of stands identified as “Tentatively suitable – Unavailable” old growth retention areas which overlap with the project area.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur for olive-sided flycatcher.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Potentially suitable nesting and foraging habitat is present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 29 acres and permanent impacts to 27 acres of suitable habitat. If the olive-sided flycatcher is present during construction and operation of the Project, potential direct and indirect impacts on this species would include loss of nests during tree removal and habitat loss, alteration, and fragmentation.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative):

The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 27 acres and permanent impacts to 24 acres of suitable habitat; a minor difference of approximately 2 and 3 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the olive-sided flycatcher.

Alternative 2 – Under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the long term removal of 27 acres of potentially suitable forested nesting and foraging habitat within the project area.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts

would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 24 or 27 acres of habitat out of nearly 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the olive-sided flycatcher.

White-tailed ptarmigan

Lagopus leucurus

Natural History and Potential Presence within the Project Area

The white-tailed ptarmigan occurs primarily in alpine habitat of the Southern Rocky Mountains in Colorado in isolated and patchy populations (USFS 2013). This species is known to occur within suitable habitat on the Arapaho Roosevelt NF (USFS 2013). In addition to strong alpine affinities, willow-dominated alpine habitats are very important for supplying both food and cover, especially in winter, for the white-tailed ptarmigan (USFS 2013). Discussion of this species is only included here because of the presence of the small area of alpine habitat at the Middle Bald Mountain site. However, this alpine habitat area is not extensive enough to support a population of this species. Therefore, suitable habitat for this species is not present in the project area, and the Project would have no impact for this species under any alternative.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on the white-tailed ptarmigan.

Alternative 2 – Due to the lack of suitable habitat, Alternative 2 is expected to have “No Impact” on the white-tailed ptarmigan.

Alternative 3 – Due to the lack of suitable habitat within the project area, Alternative 3 is expected to have “No Impact” on the white-tailed ptarmigan.

Cumulative Effects

Under all alternatives, no adverse effects or impacts are expected for the white-tailed ptarmigan. Consequently, there is no potential for adverse cumulative impacts to occur for this species from implementation of this Project.

AMPHIBIANS

Boreal toad

Anaxyrus boreas boreas

Natural History and Potential Presence within the Project Area

The boreal toad occurs in wet areas of the montane and subalpine zones from approximately 8,500 to 11,500 feet amsl (Campbell 1970). The boreal toad historically occurred throughout most of the mountainous portions of Colorado except the Sangre de Cristo Range, Wet Mountains, and Pikes Peak area (Hammerson 1999).

Adult boreal toads congregate near water bodies to breed from mid-May to July, depending on weather and elevation. Adults generally are near water during the day, but may move farther from water to

forage at night (Hammerson 1999). Boreal toads breed in any body of water lacking a strong current and with gradually descending banks at some point around the perimeter (Loeffler 1998), often in marshy areas with emergent vegetation and/or shrubby willows (Hammerson 1999). Egg placement is usually in shallows where the thermal effects of the sun are optimized (Loeffler 1998). At higher elevations where late snowmelt and colder temperatures result in late breeding and slower development, tadpoles may not metamorphose before surface water freezes (Hammerson 1999).

Available evidence indicates that female boreal toads may disperse over greater distances and into drier habitats than males (Loeffler 1998). Studies of boreal toads by the CPW indicate that male toads remain within 300 meters of breeding sites, while females can move up to 3 to 4 miles from breeding areas (Jones 1999). Upland habitats for both boreal toad males and females include aspen and conifer habitats with rocky areas or ground squirrel holes where toads seek refuge in rock crevices or rodent burrows to avoid temperature extremes and desiccation.

Surveys conducted in 2012 did not detect any individuals within the project area (BMEC 2012). However, potential habitat including beaver ponds and side channels containing still water associated with the South Lone Pine Creek was identified near the northeastern corner of the project area (BMEC 2012).

Northern leopard frog

Lithobates sylvatica

Natural History and Potential Presence within the Project Area

The northern leopard frog occurs in Colorado in a variety of wetland habitats, which provide relatively fresh water with moderate salinity, including springs, slow streams, marshes, bogs, ponds, canals, flood plains, beaver ponds, reservoirs, and lakes, usually in permanent water with rooted aquatic vegetation (Hammerson 1999; Smith and Keinath 2007). Northern leopard frogs are a highly aquatic species and are usually found in close association with the banks and shallow water areas of permanent marshes, ponds, streams, lakes, and reservoirs. Water bodies with rooted aquatic vegetation are preferred, although adult frogs can disperse into moist, grassy meadows away from aquatic habitat to forage during the summer months (Hammerson 1999). Suitable habitat exists in beaver ponds and side channels containing still water associated with the South Lone Pine Creek near the northeastern corner of the project area (BMEC 2012).

Based on the habitat description for these two species, potential occurrence within the project area would be limited to suitable surface waterbodies located along portions of the distribution line.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur to either boreal toad or leopard frog.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Potentially suitable habitat may be present within or adjacent to the proposed project area along perennial and intermittent streams and wetlands along portions of the distribution line. Field surveys for wetlands and potential waters of the U.S. were conducted along the proposed access road and tower site October 2012 by AECOM field staff. Field reconnaissance surveys were conducted by AECOM field staff along the Killpecker site proposed access road and tower site in November 2013. Along the proposed power line, proper functioning condition surveys were conducted by BMEC in September 2007. Within the project area, three perennial streams, and multiple intermittent and ephemeral channels were identified. Most of the identified streams would be crossed by the proposed power line. No riparian areas or waterbodies are

located along the proposed access roads or at the proposed tower sites; however, the originally-proposed access road to the Middle Bald Mountain site crossed a wetland (fen), so that access road was relocated. That new proposed access route is relocated away from the wetland (fen), so project activities would avoid any wetland disturbance.

Additional impacts to surface water could occur from spills or leaks of fuel or lubricants. Implementation of project design criteria and best management practices would reduce these impacts through the development of, and adherence to, a SPCC that would require appropriate containment measures; any remaining impacts would be short-term direct impacts and would be less than significant.

As stated in the Design Criteria, wetland and waterbody surveys would be conducted prior to construction in areas to be disturbed for the power line along NFSR 300. All wetlands and waterbodies would be strictly avoided. No surface disturbance (including overland vehicle travel) would occur within wetland or riparian areas. All vegetation thinning within riparian or wetland areas would be completed either by hand or from the road. If wetlands and waterbodies cannot be avoided, consultation with the Forest Service to determine additional mitigation would be required. Wetland features identified as jurisdictional during surveys would require consultation with the USACE. If during consultation with the USACE, it is determined that jurisdictional waters occur within the project area, a Section 404, Nationwide Permit 12 - Utility Line Activities would likely apply to the construction of the power line structures, foundations, access roads, and temporary structures or work needed to complete the Project (*Federal Register*, Vol. 77, No. 34, part III, February 21, 2012).

Additionally, based on the design criteria for the Project, any disturbance within 100 feet of perennial and intermittent streams would be prohibited. This design criterion would avoid potential impacts to surface waters. Less than 0.1 acre of shrub - willow habitat would be impacted by distribution line construction, making impacts from the removal of suitable habitat minimal.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect of effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact for the boreal toad and northern leopard frog.

Alternative 2 – Based on the impact analysis, under this alternative, the Project would have “no impact” on boreal toad and northern leopard frog. This determination is based on the design criteria implemented for the Project to reduce impacts to wetland and waterbodies.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

Under all alternatives, no adverse effects or impacts are expected for the boreal toad and northern leopard frog. Consequently, there is no potential for adverse cumulative impacts to occur for these species from implementation of this Project.

Arapaho-Roosevelt NF Management Indicator Species (MIS)

Elk

Cervus elaphus

Natural History and Potential Presence within the Project Area

In Colorado, elk range covers the western two-thirds of the state, generally at elevations above 6,000 feet, although they are occasionally reported in the South Platte River drainage on the eastern plains (Armstrong et al. 2011). Considered generalist feeders, elk are both grazers and browsers. In the northern and central Rocky Mountains, grasses and shrubs compose most of the winter diet, with grasses becoming of primary importance in the spring months. Forbs become increasingly important in late spring and summer, and grasses again dominate in the fall. Forbs tend to be favored on drier sites, but browse is preferred in most mesic areas including aspen stands, willow communities, and moist meadows.

Elk breed in the fall with the peak of the rut in Colorado occurring during the last week of September and first week of October. Breeding typically is over by late October. Most calves are born in late May to early June. Calving grounds generally are in areas where forage, cover, and water are in juxtaposition. Elk tend to inhabit higher elevations during spring and summer and migrate to lower elevations for winter range. Spring and fall migrations are tied to weather and forage availability. Snow depths of about 6 inches may trigger elk movement to lower elevation winter ranges (Armstrong et al. 2011).

The project vicinity is within the Red Feather-Poudre Canyon elk herd (E-4) and overlaps with Game Management Unit (GMU) 8. It is located in northern Larimer County in the area north and west of Fort Collins. E-4 is bounded on the north by the Wyoming state line, on the west by Jackson County, and on the east by I-25. The southern boundary is defined by Harmony Road, Larimer County roads 19, 38E, 27 and 44H, the Elk Creek and Pennock Creek divide and Rocky Mountain National Park's northern border. E-4 is drained by the Laramie River, and the north fork and mainstem of the Cache la Poudre River.

Elevations range from 12,795 feet at the highest point in the southwestern part of the DAU to 4,921 feet along the eastern edge near Fort Collins.

Sensitive elk ranges in the project vicinity are detailed in **Table 10** and are displayed on **Figure 7**. The CPW defines summer range as that part of the range of a species where 90 percent of the individuals are located between spring green-up and the first heavy snowfall, or during a site-specific period of summer as defined for each DAU. Production areas are part of the overall range of elk occupied by the females from May 15 to June 15 for calving.

Upland meadow and mountain shrub habitats provide the highest-quality forage areas for elk within the project vicinity. Depending on tree canopy cover, forage also is present within forested stands in the form of shrubs, grasses, and herbaceous species. Elk are an MIS for young to mature forest structural stage habitats for the ARNF (USDA Forest Service 1997).

Table 10. Sensitive Elk Ranges Impacted by the Middle Bald Mountain Project

Elk Range Type	Acres
Production Areas	22.3
Summer Concentration Areas	27.5

Direct and Indirect Effects

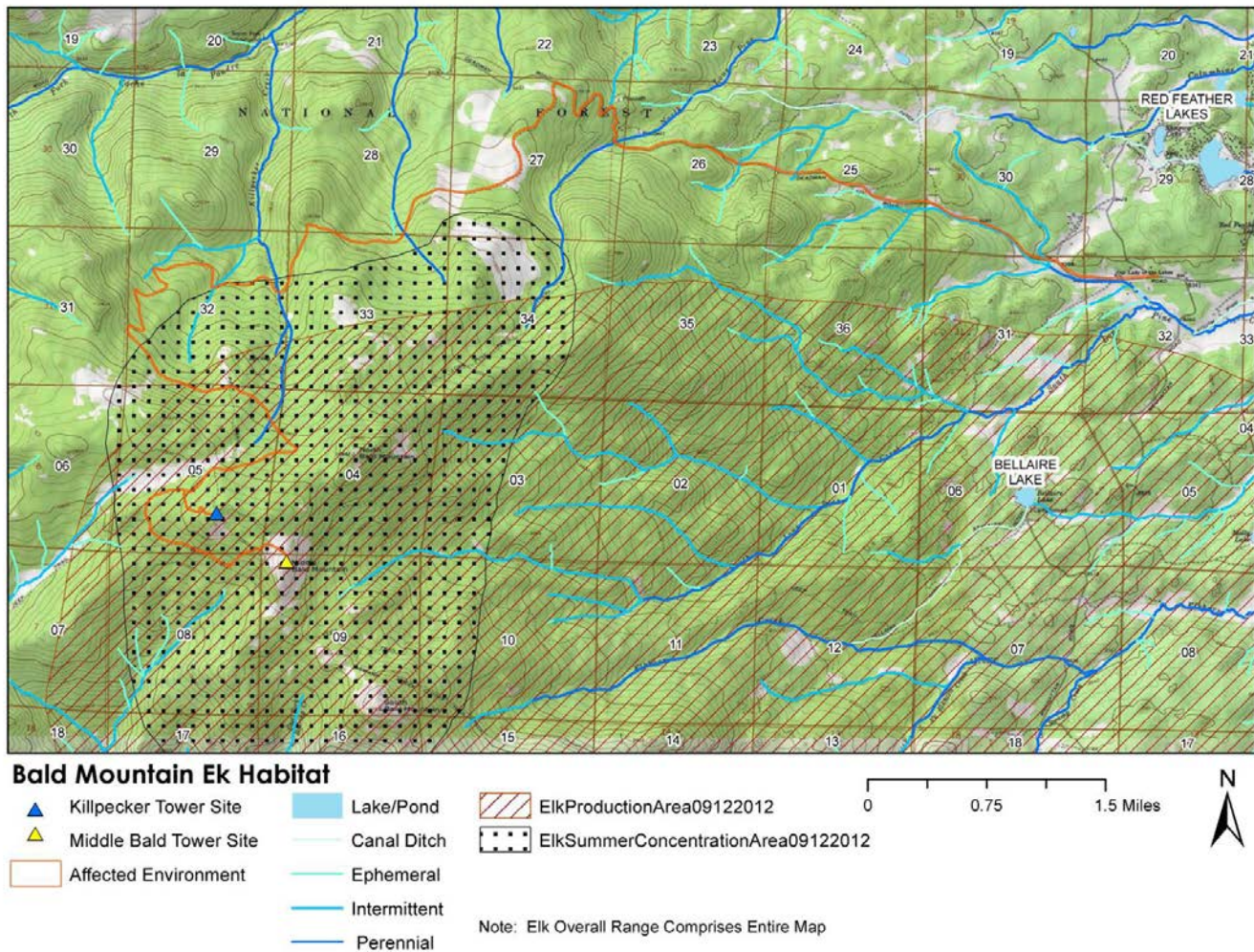
Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Under this alternative, there would be approximately 18 acres of temporary and less than 1 acre of permanent impacts to elk production areas. These areas are the most significantly impacted by human-caused disturbances and may cause cows to move, resulting in calves being more susceptible to mortality.

Under this alternative, there would be approximately 22.5 acres of temporary and less than 1 acre of permanent impacts to elk summer concentration areas. Impacts include the short-term loss of potential foraging habitat and an increase in habitat fragmentation within the project surface disturbance area. However, this loss of vegetation would represent a small percentage (less than 1 percent) of the overall available habitat within the region. The loss of available woody/shrubby vegetation would be long-term (greater than 20 years). However, herbaceous species may become established within 3 to 5 years, depending on reclamation success. Suitable habitat adjacent to disturbed areas would be available for elk until grasses and woody vegetation were re-established within the disturbance areas.

Additional impacts to elk would result from increases in noise levels and human presence during construction and operation activities. Studies have shown that big game species tend to move away from areas of human activity and roads, therefore, reducing habitat utilization near disturbance areas (Cole et al. 1997; Sawyer et al. 2006; Ward 1976). Disturbance associated with construction activities would be short-term, and it is assumed that animals would return to the area following the completion of the Project construction.

Figure 7 Sensitive Elk Ranges within the Middle Bald Mountain Project Area



Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): Under this alternative, there would be approximately 13 acres of temporary and less than 1 acre of permanent impacts to elk production areas. Additionally, there would be approximately 17 acres of temporary and less than 1 acre of permanent impacts to elk summer concentration areas. The direct and indirect effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on elk.

Alternative 2 – Under this alternative, the Project would create adverse short-term impacts to elk habitat in the project area if project construction were to occur in areas used as production areas and summer range. Tree clearing for the powerline corridor may increase forage availability marginally. However, changes to elk populations or trends within the ARNF are not expected from the proposed Project because of the minor level of habitat change.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would result in a permanent loss of only less than one acre of habitat out of approximately 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for elk.

Mule Deer

Odocoileus hemionus

Natural History and Potential Presence within the Project Area

In Colorado, mule deer are found statewide in all ecosystems. Highest densities are reached in areas including the Piceance Basin, Gunnison River drainage, and foothills of the Front Range (Armstrong et al. 2011). Mule deer spring and summer ranges most typically are a mosaic of meadows, aspen woodlands, alpine tundra, subalpine forest edges, or montane forest edges. Seasonally, mule deer appear to be relatively sedentary, staying within areas of about 100 to 2,200 acres. In the Rocky Mountains, mule deer winter diets consist mainly of browse from a variety of trees and shrubs, with some use of forbs. In the spring, browse contributes half of the diet, and forbs and grasses make up the remainder. During the summer months, grass consumption declines in favor of forbs. Browse consumption increases and forb use declines throughout the fall and into winter. Over much of Colorado, the species is seasonally migratory, summering at higher elevations and moving downslope to winter range.

The project vicinity is located within the Red Feather-Poudre Canyon deer herd range (Data Analysis Unit D-4, Game Management Unit 8). Data Analysis Unit (DAU) D-4 is located in Larimer County in north-central Colorado. D-4 is bounded on the north by the Wyoming state line, on the west by Jackson County, and on the east by I-25. The southern boundary is defined by Harmony Road, Larimer County roads 19, 38E, 27, and 44H, the Elk Creek and Pennock Creek divide and Rocky Mountain National Park's northern border. D-4 is drained by the Laramie River, and the north fork and mainstem of the Cache la Poudre River. The DAU is comprised of game management units 7, 8, 9, 19, and 191. Elevations range from 12,795 feet at the highest point in the southwestern part of the DAU to 4,921 feet along the eastern edge near Fort Collins.

NDIS big game range mapping shows the entire Project to be within summer range for mule deer (NDIS 2012). CPW definition for mule deer summer range is the same as that provided for elk in the previous section.

Field surveys indicated that the upland meadow and mountain shrub habitats provide the highest-quality forage areas for mule deer within the project vicinity. Depending on tree canopy cover, forage also is present within forested stands in the form of shrubs, grasses, and herbaceous species. Mule deer are an MIS for young to mature forest structural stage habitats for the ARNF (USDA Forest Service 1997).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Under this alternative, impacts include the short-term loss of potential foraging habitat and an increase in habitat fragmentation within the project surface disturbance area. However, this loss of vegetation would represent a small percentage (less than 1 percent) of the overall available habitat within the region. The loss of available woody/shrubby vegetation would be long-term (greater than 20 years). However, herbaceous species may become established within 3 to 5 years, depending on reclamation success. In most instances, suitable habitat adjacent to disturbed areas would be available for mule deer until grasses and woody vegetation were re-established within the disturbance areas.

Additional impacts to mule deer would result from increases in noise levels and human presence during construction and operation activities. Studies have shown that big game species tend to move away from areas of human activity and roads, therefore, reducing habitat utilization near disturbance areas (Cole et al. 1997; Sawyer et al. 2006; Ward 1976). Disturbance associated with construction activities would be short-term, and it is assumed that animals would return to the area following the completion of the Project construction.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): Under this alternative, the direct and indirect effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on mule deer.

Alternative 2 – Under this alternative, the Project would create adverse short-term impacts to mule deer habitat in the project area, but changes to mule deer populations or trends within the ARNF are not expected from the proposed Project.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact a very small amount of the approximately 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for mule deer.

Golden-crowned kinglet

Regulus satrapa

Natural History and Potential Presence within the Project Area

The golden-crowned kinglet is apparently secure in Colorado. The species is a widespread North American bird, breeding in many states, and over much of Canada, and wintering across much of the continent south to Florida, Texas, and Mexico. It also occurs in isolated mountain ranges in southern Mexico and Guatemala, where it is represented by separate subspecies (NatureServe Explorer 2012). Breeding habitat for the golden-crowned kinglet is coniferous forests. The species constructs open cup nests of moss, lichen, spider web, and bark strips, lined with feathers, fine grasses, plant down, lichens, and fur in a well-concealed hanging cup suspended from a conifer branch (Cornell Lab of Ornithology 2014a). Golden-crowned Kinglets forage actively in trees or shrubs, mainly eating insects, insect eggs, and spiders. They also may consume some fruit, seeds, and tree sap (NatureServe Explorer 2012).

Golden-crowned kinglets are most commonly found in spruce/fir forests, but they apparently have a very limited presence in Douglas-fir, lodgepole pine, and ponderosa pine forests. They breed primarily in dense coniferous forests, especially where spruce is present, and winter in coniferous forests (occasionally in deciduous woodland scrub and brush). Golden-crowned kinglets eat insects and their eggs, and also fruit and seeds. They forage in tall dense conifers, concentrating at medium heights. Food is gleaned from foliage, small twigs, limbs and bark of trees and shrubs or they also may hover to clean food from vegetation. Golden-crowned kinglets are a fairly uncommon summer resident on the ARNF. This appears to be especially true for the Canyon Lakes District, as this species has not been detected during breeding bird surveys or field review conducted in similar habitat areas on the district. This interior forest species tolerates little change on nesting grounds (Kingery 1998, 1997 Revised Forest Plan, FEIS, Appendix G, page 15). Golden-crowned kinglet is the MIS for interior forest habitat for the ARNF (USDA Forest Service 1997).

This species has not been documented within the project area, but suitable habitat exists. However, Forest Plan designated interior forest polygons are not found within the project area.

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur for golden-crowned kinglet.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Should this species occur, potentially suitable nesting and foraging habitat is present within or adjacent to the proposed project area in the spruce-fir and mesic lodgepole pine habitats. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 24 acres and permanent impacts to 23 acres of suitable habitat. If present during construction and operation of the Project, potential direct and indirect impacts to this species could include mortalities to individuals by loss of nests during tree removal and habitat loss, alteration, and fragmentation from tree removal for the power line and access road.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative):

The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 23 acres and permanent impacts to 21 acres of suitable habitat; a minor difference of approximately of 1 and 2 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on the golden-crowned kinglet.

Alternative 2 – Under this alternative, the Project would create long-term impacts to suitable habitat in the project area as discussed above, but changes to populations or trends for this species within the ARNF are not expected from the proposed Project due to the the small magnitude of the habitat removed.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 21 or 23 acres of habitat out of approximately 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the golden-crowned kinglet.

Hairy woodpecker

Picoides villosus

Natural History and Potential Presence within the Project Area

The hairy woodpecker is secure in Colorado. The species inhabits mature forests, open woodlands, beaver ponds, urban areas, recently burned forests, and forests infested with bark beetles. They forage along trunks and main branches of large trees. Across North America the hairy woodpecker can be found from sea level to high mountains. It is a year-round resident, but may migrate to lower elevations or coastal areas during winter (Cornell Lab of Ornithology 2014b).

Hairy woodpeckers typically excavate their nests in the dead stub of a living tree, especially dead or dying trees. The cavity is often in a branch or stub that isn't perfectly vertical, with the entrance hole on the underside. This location may help keep flying squirrels and sapsuckers from trying to take over the hole (Cornell Lab of Ornithology 2014b). Hairy woodpecker is an MIS for young to mature forest structural stage communities for the ARNF (USDA Forest Service 1997).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Potentially suitable nesting and foraging habitat is present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 29 acres and permanent impacts to 27 acres of suitable habitat. If present during construction and operation of the Project, potential direct and indirect impacts to this species would include loss of nests during tree removal and habitat loss, alteration, and fragmentation.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative):

The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 27 acres and permanent impacts to 24 acres of suitable habitat; a minor difference of approximately of 2 and 3 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on the hairy woodpecker.

Alternative 2 – Under this alternative, the Project would create long-term impacts to suitable habitat in the project area as discussed above, but changes to populations or trends for this species within the ARNF are not expected from the proposed Project due to the small magnitude of the habitat removed.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 24 or 27 acres of habitat out of approximately 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the hairy woodpecker.

Mountain bluebird

Sialia currucoides

Natural History and Potential Presence within the Project Area

The mountain bluebird is secure in Colorado (NatureServe Explorer 2012). This species inhabits open areas of the western U.S., from 5,000 feet to 14,000 feet elevation. The mountain bluebird prefers more open habitats than other bluebirds and can be found in colder habitats in winter. It occurs in orchards, agricultural land, and open, mountain meadows near trees. In some areas of Colorado, the mountain bluebird does not migrate and can be found year-round in the warmer areas. Typically, the species occurs in Colorado from early May through the summer (CPW 2012). Mountain bluebirds typically forage in open areas, but nest in nearby forests. Nests are constructed in cavities in trees, snags, and frequently in nest boxes. Mountain bluebird is an MIS for openings within and adjacent to forest habitat for the ARNF (USDA Forest Service 1997).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable nesting and foraging habitat is limited throughout the proposed project area, primarily due to the limited amount of open foraging habitat along the powerline and access road corridor. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 35 acres and permanent impacts to 32 acres of suitable forest habitat that could provide nesting habitat. However, due to the limited open foraging habitat, actual suitable bluebird habitat is likely much less. If present during construction and operation of the Project, potential direct and indirect impacts to this species could include loss of nests during tree removal and habitat loss, alteration, and fragmentation.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect effects would be the same as those listed for Alternative 2 with the exception of amount of acres of suitable habitat disturbed. Under this alternative, there would be temporary impacts to approximately 32 acres and permanent impacts to 30 acres of suitable habitat; a minor difference of approximately 3 and 2 acres, respectively.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on the mountain bluebird

Alternative 2 – Under this alternative, the Project would create adverse short-term impacts to suitable habitat in the project area, but changes to populations or trends for this species within the ARNF are not expected from the proposed Project.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 30 or 32 acres of habitat out of approximately 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the mountain bluebird.

Pygmy nuthatch

Sitta pygmaea

Natural History and Potential Presence within the Project Area

The pygmy nuthatch is apparently secure in Colorado (NatureServe Explorer 2012). The species inhabits forests in western North America; especially mature ponderosa pine forests. They are typically found at lower and middle elevations, but can sometimes occur up to 10,000 feet. Pygmy nuthatches forage by climbing trunks and branches to search under bark and in needle clusters for insects and seeds. They are highly social, breed cooperatively, and roost communally in cavities during winter.

Pygmy nuthatches nest in live trees, dead trees, and nest boxes. They can excavate their own nest cavities, but often just enlarge and adapt existing ones. Both the male and the female, sometimes assisted by their offspring from previous years, help dig out the nest cavity and bring lining materials of bark shreds, fine moss, grass, plant down, fur, wool, snakeskin, cocoons, and feathers (Cornell Lab of Ornithology 2014c). Pygmy nuthatch is an MIS for existing and potential old growth forest habitat for the ARNF (USDA Forest Service 1997).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Potentially suitable nesting and foraging habitat is present within or adjacent to the proposed project area. Based on the impacts discussed for vegetation above, under this alternative, there would be temporary impacts to approximately 29 acres and permanent impacts to 27 acres of suitable habitat. If present during construction and operation of the Project, potential direct and indirect impacts to this species would include loss of nests during tree removal and habitat loss, alteration, and fragmentation.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative):

The direct and indirect effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on the pygmy nuthatch.

Alternative 2 – Under this alternative, the Project would create long-term impacts to suitable habitat in the project area as discussed above, but changes to populations or trends for this species within the ARNF are not expected from the proposed Project due to the small magnitude of the habitat removed.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would only impact 24 or 27 acres of habitat out of nearly 24,450 suitable acres in the CESA. Consequently, the action alternatives would not contribute to appreciable cumulative impacts for the pygmy nuthatch.

Warbling vireo

Vireo gilvus

Natural History and Potential Presence within the Project Area

The warbling vireo is secure in Colorado (NatureServe Explorer 2012). The species inhabits mixed-deciduous woodlands, especially along streams, ponds, marshes, and lakes (Cornell Lab of Ornithology 2014d). They are less often found in upland areas away from water (Cornell Lab of Ornithology 2014d). Other habitats include deciduous patches in pine forests, mixed hardwood forests, and, rarely, homogenous coniferous forests (Cornell Lab of Ornithology 2014d). Warbling vireo is the MIS for aspen habitat for the ARNF (USDA Forest Service 1997).

A warbling vireo nest is a rough and slightly rounded hanging cup, usually suspended from forks of horizontal twigs. It is constructed of plant matter, cobwebs, lichen, animal hair, and rarely feathers. The nest is almost always located in the outer portions of a tree or shrub, supported by two lateral branches (Cornell Lab of Ornithology 2014d).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Less than one acre of potentially suitable nesting and foraging habitat would be impacted by the proposed Project. If present during construction and operation of the Project, potential direct and indirect impacts to this species would include loss of nests during tree removal and habitat loss, alteration, and fragmentation.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect of effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on the warbling vireo.

Alternative 2 – Under this alternative, the Project would create long-term impacts to suitable aspen habitat in the project area, but changes to populations or trends for this species within the ARNF are not expected from the proposed Project due to the small magnitude of the habitat removed.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

The analysis assumes that: 1) human use of the study area may increase slightly with the implementation of the Project; and 2) the CESA has been previously affected by at least some level of historic and current development activities and would be affected by future actions. The resulting direct impacts would be similar to those discussed above. Habitat disturbance in the study area primarily results from timber management. However, other activities such as recreational activities and road maintenance and operations also contribute to cumulative impacts on this species and its habitat. The action alternatives would impact less than one acre of habitat, and therefore would not contribute to appreciable cumulative impacts for the warbling vireo.

Wilson's warbler

Wilsonia pusilla

Natural History and Potential Presence within the Project Area

The Wilson's warbler is apparently secure in Colorado (NatureServe Explorer 2012). The species breeds in shrub thickets of riparian habitats, the edges of beaver ponds, lakes, bogs, and overgrown clear-cuts in the montane and boreal zones and winters in tropical forests (Cornell Lab of Ornithology 2014e).

The Wilson's warbler consumes insects and occasionally berries. Most food is obtained from leaves by gleaning while perched or flying. A bowl nest is constructed of vegetation, lined with grass or hair. It is usually placed on the ground, at the base of or low in a shrub, or under bunches of grass (Cornell Lab of Ornithology 2014e). Wilson's warbler is an MIS for montane riparian areas and wetlands for the ARNF (USDA Forest Service 1997).

Direct and Indirect Effects

Alternative 1 – No Action: Under this alternative, the Project would not be constructed, and no suitable habitat would be altered. Consequently, no direct or indirect effects would occur.

Alternative 2 – Middle Bald Mountain Alternative (Proposed Alternative): Suitable habitat may be present within or adjacent to the proposed project area along perennial and intermittent streams and wetlands along portions of the distribution line. Field surveys for wetlands and potential waters of the U.S. were conducted along the proposed access road and tower site October 2012 by AECOM field staff. Field reconnaissance surveys were conducted by AECOM field staff along the Killpecker site proposed access road and tower site in November 2013. Along the proposed power line, proper functioning condition surveys were conducted by BMEC in September 2007. Within the project area, three perennial streams, and multiple intermittent and ephemeral channels were identified. Most of the identified streams would be crossed by the proposed power line. No riparian areas or waterbodies are located along the proposed access roads or at the proposed tower sites; however, the originally-proposed access road to the Middle Bald Mountain site crossed a wetland (fen), so that access road was relocated.

That new proposed access route is relocated away from the wetland (fen), so project activities would avoid any wetland disturbance.

As stated in the Design Criteria, wetland and waterbody surveys would be conducted prior to construction in areas to be disturbed for the power line along NFSR 300. All wetlands and waterbodies would be strictly avoided. No surface disturbance (including overland vehicle travel) would occur within wetland or riparian areas. All vegetation thinning within riparian or wetland areas would be completed by hand or from the road. If wetlands and waterbodies cannot be avoided, consultation with the Forest Service to determine additional mitigation would be required. Wetland features identified as jurisdictional during surveys would require consultation with the USACE. If during consultation with the USACE, it is determined that jurisdictional waters occur within the project area, a Section 404, Nationwide Permit 12 - Utility Line Activities would likely apply to the construction of the power line structures, foundations, access roads, and temporary structures or work needed to complete the Project (*Federal Register*, Vol. 77, No. 34, part III, February 21, 2012).

Additionally, based on the design criteria for the Project, any disturbance within 100 feet of perennial and intermittent streams would be prohibited. This design criterion would avoid potential impacts to surface waters. Less than 0.1 acre of shrub - willow habitat would be impacted by distribution line construction, making impacts from the removal of suitable foraging habitat minimal.

If present during construction and operation of the Project, potential direct and indirect impacts to this species would include habitat loss, alteration and fragmentation.

Alternative 3 – Killpecker Alternative (Environmentally Preferred Alternative): The direct and indirect of effects would be the same as those listed for Alternative 2.

Determination of Effects and Rationale:

Alternative 1 – The construction and operation of the Project would not occur under this alternative. Consequently, it was determined that Alternative 1 would have no impact on the Wilson's warbler.

Alternative 2 – Based on the impact analysis, under this alternative, the Project “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.” This determination is based on the design criteria implemented for the Project to reduce impacts to wetland and waterbodies. Less than 0.1 acre of shrub-willow habitat may be impacted.

Alternative 3 – The determination of effects under this alternative would be the same as that reached for Alternative 2.

Cumulative Effects

Under all alternatives, no adverse effects or impacts are expected for the Wilson's warbler. Consequently, there is no potential for adverse cumulative impacts to occur for this species from implementation of the Project. The very small amount of potential impact to shrub-willow habitat likely would be temporary and would not change habitat quality in the long term, as shrub-willow habitat is very resilient to limited and temporary physical disturbance.

SUMMARY OF EFFECTS OF THE ALTERNATIVES

Summary of Determinations by Alternative for Species Analyzed for the Middle Bald Mountain Area Project

Species	Status	Alt. 1 – No Action	Alt. 2 – Middle Bald Mountain - Proposed Action	Alt. 3 – Killpecker - Environmentally Preferred
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Summary of Determinations by Alternative for Species Analyzed for the Middle Bald Mountain Area Project

Species	Status	Alt. 1 – No Action	Alt. 2 – Middle Bald Mountain - Proposed Action	Alt. 3 – Killpecker - Environmentally Preferred
Canada Lynx	Threatened	No Effect	¹ NLAA	NLAA
Wolverine	Proposed Threatened	No Effect	No Effect	No Effect
Gray Wolf	FS Sensitive	No Impact	No Impact	No Impact
American marten	FS Sensitive	No Impact	² May Impact Individuals...	May Impact Individuals...
Pygmy shrew	FS Sensitive	No Impact	May Impact Individuals...	May Impact Individuals...
Fringed myotis	FS Sensitive	No Impact	May Impact Individuals...	May Impact Individuals...
Townsend's big-eared bat	FS Sensitive	No Impact	No Impact	No Impact
Hoary bat	FS Sensitive	No Impact	May Impact Individuals...	May Impact Individuals...
Northern goshawk	FS Sensitive	No Impact	May Impact Individuals...	May Impact Individuals...
Flammulated owl	FS Sensitive	No Impact	May Impact Individuals...	May Impact Individuals...
Lewis' woodpecker	FS Sensitive	No Impact	No Impact	No Impact
Olive-sided flycatcher	FS Sensitive	No Impact	May Impact Individuals...	May Impact Individuals...
White-tailed ptarmigan	FS Sensitive	No Impact	No Impact	No Impact
Boreal toad	FS Sensitive	No Impact	No Impact	No Impact
Northern leopard frog	FS Sensitive	No Impact	No Impact	No Impact
Elk	MIS for Young to Mature Forest & Openings	No change to populations	No change to populations	No change to populations
Mule deer	MIS for Young to Mature Forest & Openings	No change to populations	No change to populations	No change to populations
Golden-crowned kinglet	MIS for Interior Forest	No change to populations	No change to populations	No change to populations
Hairy woodpecker	MIS for Young to Mature Forest	No change to populations	No change to populations	No change to populations
Mountain bluebird	MIS for Openings	No change to populations	No change to populations	No change to populations
Pygmy nuthatch	MIS for Old Growth	No change to populations	No change to populations	No change to populations
Warbling vireo	MIS for Aspen	No change to populations	No change to populations	No change to populations
Wilson's Warbler	MIS for Montane Riparian Areas and Wetlands	No change to populations	No change to populations	No change to populations

¹NLAA – May Affect, but Not Likely to Adversely Affect

²May adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend towards federal listing.

RECOMMENDED CONSERVATION MEASURES TO AVOID, MINIMIZE, OR MITIGATE ADVERSE EFFECTS

Additional wildlife mitigation measures beyond those incorporated in the project design criteria include:

- Preconstruction amphibian surveys;
- Preconstruction goshawk surveys; and
- Additional consultation with the USFS on protection buffers, if raptor nests are located.

RESPONSIBILITY FOR A REVISED BIOLOGICAL EVALUATION

This Biological Evaluation was prepared based on presently available information. If the action is modified in a manner that causes effects not considered, or if new information becomes available that reveals that the action may impact endangered, threatened, proposed, or sensitive species in a manner or to an extent not previously considered, a new or revised Biological Evaluation may be required.

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